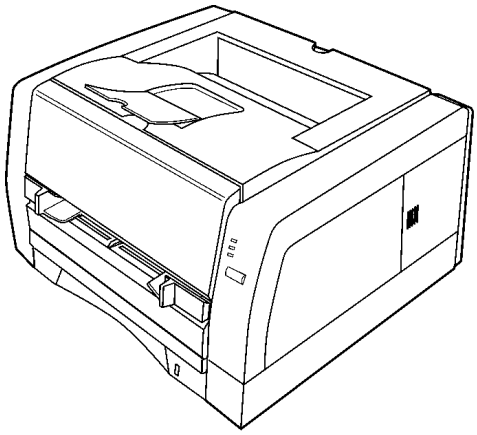
ORDER NO.KM60310631C0
G0

Service Manual

Laser Printer



KX-P7305
KX-P7310

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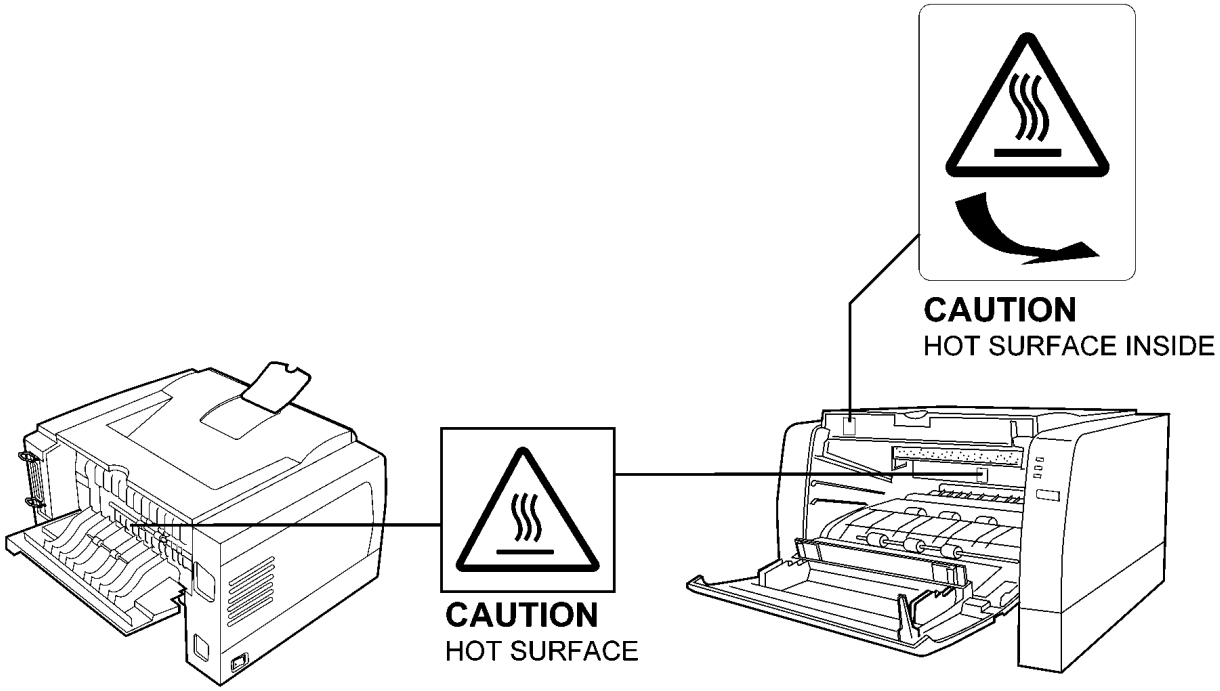
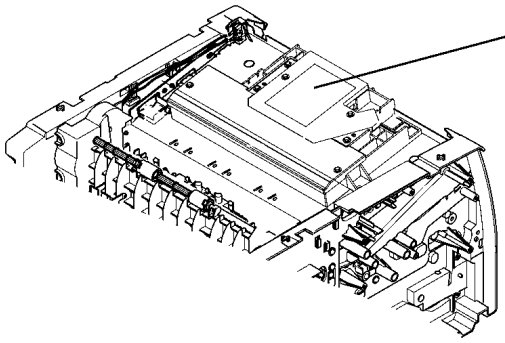
⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.



Laser Scanning Unit (LSU)



CAUTION	- Class 3B invisible laser radiation when open. AVOID EXPOSURE TO BEAM.
VORSICHT	- Unsichtbare Laserstrahlung nach Klasse 3B beim Öffnen. Kontakt mit Strahlung meiden.
ATTENTION	- Appareil à rayonnement laser de classe 3B. Rayonnement laser invisible dangereux en cas d'ouverture. Exposition au faisceau dangereuse.
ATENCIÓN	- Clase 3B Radiación láser invisible al ser abierto. Evitar exponerse a los rayos.
VARNING	- Klass 3B. Osynlig laserstrålning när denna del är öppen. Strålen är farlig.
VAROITUS	- Avattaessa purkautuu luokan 3B näkymätöntä lasersäteilyä. Älä altista itseäsi säteilylle.
ADVARSEL	- Usynlig laserstråling i klasse 3B ved åbning. Undgå udsættelse for stråling.
ADVARSEL	- Klasse 3B, usynlig laserstråling ved åpning. Unngå eksponering for strålen.
警告	- 打开时有 3B 级不可见激光辐射。请避免暴露于光束。 PJQTB0268ZA

Laser diode properties

Laser output	: 5 mW max
Wavelength	: 785 nm
Emission duration	: Continuous

Caution

This printer utilizes a laser. Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

CONTENTS

Page

1 Introduction 4
1.1. Specifications 4
1.2. Indicators 9
1.3. Parts Identification 11
1.4. Component Layout and Paper Path 12
1.5. Electrical Components and Sensor Boards 13
1.6. Switches and Solenoids 14
1.7. Print Process 15
1.8. Paper Feed 17
1.9. Laser Scan Unit (Exposure) 18
1.10. Fuser Unit 20
1.11. Paper Ejection and Paper Switchback 21
2 Lead Free Solder 22
2.1. About Lead Free Solder 22
2.2. Suggested PbF Solder 22
2.3. How to recognize that Lead Free Solder (PbF) is used 23
3 Installation, Setup, and Repacking 26
3.1. Installation Requirements 26
3.2. Setup 26
3.3. Repacking 29
4 Removal and Replacement Procedures 32
4.1. Front and Rear Covers 32
4.2. Right, Left and Top Covers 34
4.3. Laser Scanning Unit (LSU) 35
4.4. High Voltage Board and Power Supply Unit 36
4.5. Engine Control and Indicator Boards 38
4.6. Main Control and 2nd Feeder I/F Board 39
4.7. Toner Empty Sensor Board 40
4.8. Fan Motor 40
4.9. Fuser Drive Gear 40
4.10. Gear Support Bracket, Relay Board (A), Motor, Drive Gear Unit and Paper Empty Sensor Board 41
4.11. Upper Exit Roller Holder 44
4.12. Fuser Unit 45
4.13. Pickup Roller 50
4.14. Pickup Solenoid, Paper Feed Roller, Registration Roller and Transfer Roller 51
4.15. Transfer Roller Assembly 53
4.16. Auto Duplex Unit, ADU Registration Roller and ADU Pinch Roller 54
4.17. Registration Sensor Lever, Paper Top Detection Sensor Lever and Registration & Paper Top Detection Sensor Board 56
4.18. Paper Empty Sensor Lever 58
5 Electronic Circuit Description and Diagrams 59
5.1. Block Diagram 59
5.2. Connection Diagram 61
5.3. Power Supply 62
5.4. Engine Control Board 63
5.5. Main Control Board 78
6 Schematic Diagram 90
6.1. Main Control Board 91
6.2. Engine Control Board 103
6.3. Sensors, Indicator and Relay Boards 107
6.4. Paper Empty Sensor Board and 2nd Feeder I/F Board 109
7 Explanation of Connectors 111
7.1. Main Control Board 111
7.2. Engine Control Board 115
7.3. Registration & Paper Top Sensor Board 120
7.4. Paper Exit/ADU Paper Jam Sensor Board 120
7.5. Indicator Board 121
7.6. Paper Empty Sensor Board 121
7.7. Toner Empty Sensor Board 121
7.8. 2nd Feeder I/F Board 122
8 Component Reference Guide 123
8.1. Main Control Board 123
8.2. Engine Control Board 134
9 Preventative Maintenance 138
9.1. General 138
9.2. Recommended Tools 138
9.3. Recommended Cleaning 138
9.4. Maintenance Tables 139
10 Troubleshooting 141
10.1. Self-Diagnostic Indicators 141
10.2. Initial Troubleshooting Flowchart 144
10.3. No Operation 145
10.4. Print Quality 148
10.5. Paper Jam 158
10.6. Call Service 164
11 Replacement Parts List with Lubrication Guide 176
11.1. Exterior 176
11.2. Right Side Parts 178
11.3. Left Side Parts (Power Supply Unit and High Voltage Board) 183
11.4. Rear and Top Side Parts 184
11.5. Bottom Side Parts 187
11.6. Mechanical Base 189
11.7. Media Tray (Paper Cassette) 190
11.8. Packing 192
11.9. Main Control Board 193
11.10. Engine Control Board 203
11.11. Registration & Paper Top Detection Sensor Board 209
11.12. Paper Exit / ADU Paper Jam Sensor Board 209
11.13. Indicator Board 209
11.14. Toner Empty Sensor Board 210
11.15. Paper Empty Sensor Board 210
11.16. 2nd Feeder I/F Board 210
11.17. PbF Solder Service Part Number 210

1 Introduction

1.1. Specifications

1.1.1. Printer

Specifications are subject to change without notice.

Printer	CPU	NEC V850E1 100MHz 32bit RISC	
	Printing Method	Semiconductor Laser	
	Print Speed	18 ppm (pages per minute) maximum (A4 size plain paper, simplex printing, 5% image area) 19 ppm maximum (Letter size plain paper, simplex printing, 5% image area)	
	Resolution	300 x 300 dpi (dots per inch), 600 x 600 dpi, 1200 x 600 dpi	
	Paper Feed	Media tray (universal cassette): up to 250 sheets of paper [75 g/m^2 (20 lbs.)] Manual feed: 1 sheet 2nd feeder (option): up to 550 sheets of paper [75 g/m^2 (20 lbs.)]	
	Paper Output	Up to 150 sheets of paper [75 g/m^2 (20 lbs.)]	
	Emulation	PCL6 Emulation *1 PostScript® Level 2 Emulation *1	
	Memory	16 MB standard (max. 48 MB)	
	Operating Environment	10 to 32.5°C (50 to 90.5°F), 20 to 80% RH	
	Storage Environment	0 to 35°C (32 to 95°F), 10 to 80% RH	
	Warm Up Time	15 seconds [at 22°C (71.6°F), 50% RH]	
	Dimensions	399 (W) x 390.5 (D) x 254 (H) mm [15.7" x 15.4" x 10"]	
	Mass (Weight)	Approx. 10 Kg {22 lbs} (with consumables)	
	Voltage	120V ± 10%	
	Frequency	60 Hz	
	Power Consumption	Printing (average): 330 W or less (Duplex printing at maximum print speed) Stand-by (average): 70 W or less Power saving (When the fan stops): 10.5 W or less Meets ENERGY STAR® power conservation requirements.	
	Noise Level	Printing : 51 dBA (Ave.) Standby : 29 dBA (Ave.)	
	Density Control	Variable	
	Fusing System	Heat and Pressure Rollers	
	Photoreceptor	Organic Photoconductor (OPC)	
	Development Process	One component non magnetic development	
	Consumables/Life	Starter Toner Cartridge (provided with printer)	2,000 pages average *2
		Toner Cartridge	5,000 pages average *2
		OPC Drum Unit	20,000 pages average *2

*1 The available fonts or print may differ from the genuine software because they are not genuine software of HP or Adobe.

*2 Average life at 5% image area with repetitive printing of 10 pages (Letter/A4 size, single sided printing, default density).
5% image area means that the black area within the printing area is 5%. Printing 10% image area continuously will reduce the life of the toner to about half as compared to printing 5% image area.

1.1.2. Paper

Specifications are subject to change without notice.

Paper	Basic Weight	60 to 105 g/m ^{2} (16 to 28 pounds)	
	Thickness	3.7 to 7.5 mils (1 mil = 1/1000")	
	Moisture Content	4% to 6%	
	Smoothness	100 to 300 Sheffield	
	Acid Content	5.5 PH minimum	
	Fusing Compatibility	Must not scorch, melt, offset material, or release hazardous emissions when heated to 200°C (392°F) for 0.1 second	
	Cutting Dimensions	±0.0313 inch of normal, corners 90°±4°	
	Grain	Long Grain	
	Cut Edge Conditions	Cut with sharp blades, no paper dust	
	Ash Content	Not to exceed 10%	
	Curl	No allowable curl toward side to be printed	
	Packing	Polyaminated moisture proof ream wrap	
	Paper Size	Letter	216 x 279 mm (8.5" x 11")
		A4	210 x 297 mm (8.27" x 11.7")
		Legal	216 x 356 mm (8.5" x 14")
		B5	176 x 250 mm (6.92" x 9.84")
		Executive	184 x 267 mm (7.25" x 10.5")
		A5*	148.5 x 210 mm (5.85" x 8.27")
		A6*	105 x 148.5 mm (4.13" x 5.85")
	Envelope Size*[1]	Envelope #9	98 x 225 mm (3.87" x 8.87")
		Envelope #10	105 x 241 mm (4.12" x 9.5")
		International DL	110 x 220 mm (4.33" x 8.66")
		International C5	162 x 229 mm (6.38" x 9.01")
		Monarch	98 x 191 mm (3.87" x 7.5")

*[1] Duplex printing cannot be performed with A5, A6 size paper or envelope.

Types of paper to avoid.

- Extremely smooth or shiny paper or paper that is highly textured
- Coated paper
- Acid paper
- Letterhead imprinted with low temperature or thermography. These materials may transfer onto the fusing roller and cause damage. Any pre-printed paper should use inks compatible with 200°C (392°F) for 0.1 second.
- Damaged or wrinkled paper, or paper with irregularities such as tabs, staples, etc.
- Multipart forms or carbonless paper
- Paper with a cotton and/or fiber content over 25%
- Ink jet media (paper, transparency, etc.) (It may transfer onto the fuser unit's roller and cause damage.)

1.1.3. Interface, Options, Accessories, and Supplies

Interface	Parallel (Bi-directional)	Connector Type	IEEE P1284-B (36PIN Anphenol) Connector
		Cable	Use a shielded cable 2 meters (6.6 feet) or less in length.
	USB	Connector Type	"B" Receptacle Connector
		Cable	High Speed Mode: Use a high-speed recommended cable 2 meters (6.6 feet) or less in length. Full Speed Mode: Use a high-speed (or a full-speed) shielded cable 2 meters (6.6 feet) or less in length.
	Network (100 Base TX / 10 Base T) (KX-P7310 only)	Connector Type	RJ-45 Connector
		Cable	Use category 5 shielded twisted pair cable.

Options, Accessories, and Supplies	KX-PDP10	Toner Cartridge (5,000 page life)	for U.S.A.
	KX-PDP11		for All countries/areas except U.S.A. and China
	KX-PDP12		for China
	KX-PDM7	OPC Drum Unit (20,000 page life)	
	KX-PEM12	16 MB RAM Board	
	KX-PEM13	32 MB RAM Board	
	KX-PMF3	2nd Feeder	

Specifications are subject to change without notice

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1.1.4. Others

1.1.4.1. About Media

Available Media and Media Size

Media	Media size	Media tray	Manual feed	Duplex print	2nd feeder (option)
Paper Cotton paper	Letter	○	○	○*1	○*1
	A4	○	○	○*1	○*1
	Legal	○	○	○*1	○*1
	B5	○	○	○*1	○*1
	Executive	○	○	○*1	○*1
	A5	○	○	X	X
	A6	○	○	X	X
Available media size*2	Max.	216 X 356 mm (8.5" X 14")	216 X 356 mm (8.5" X 14")	216 X 356 mm (8.5" X 14")	216 X 356 mm (8.5" X 14")
	Min.	105 X 148.5 mm (4.1" X 5.9")	76.2 X 127 mm (3" X 5")	182 X 257 mm (7.2" X 10.1")	182 X 257 mm (7.2" X 10.1")
Transparency	Letter	○	○	X	X
	A4	○	○	X	X
Label	Letter	X	○	X	X
	A4	X	○	X	X
Envelope	#9	○	○	X	X
	#10	○	○	X	X
	Monarch	○	○	X	X
	DL	○	○	X	X
	C5	○	○	X	X

○: supported X: not supported

*1 Cotton paper cannot be used for duplex printing and printing from 2nd feeder.

*2 When printing a document on a custom size paper, print it using the application software that page size can be set to a custom size. At that time set the paper size to letter or A4 for the printer's media size setting.

Available Paper Weights and Capacity

	Media	Media tray	Manual feed	2nd feeder (option)
Paper weights	Plain paper	60 - 105 g/m^2 (16 - 28 lbs.)	60 - 105 g/m^2 (16 - 28 lbs.)	60 - 105 g/m^2 (16 - 28 lbs.)
	Thick paper	X	106 - 165 g/m^2 (29 - 44 lbs.)	X
	Envelope	90 g/m^2 (24 lbs.)	90 g/m^2 (24 lbs.)	X
Paper capacity	Paper	250 sheets [75 g/m^2 (20 lbs.)]	1 sheet	550 sheets [75 g/m^2 (20 lbs.)]
	Transparency	20 sheets	1 sheet	X
	Label	X	1 sheet	X
	Envelope	30 sheets	1 sheet	X

Note:
Automatic duplex printing can be only performed on plain paper [75 - 90 g/m^2 (20 - 24 lbs.)] from the media tray or 2nd feeder (option).

Recommended Media

Media	Media size	Recommended media
Paper	Letter	Xerox 4024 DP paper 75 g/m^2 (20 lbs.)
	A4	Xerox paper 80 g/m^2
Transparency	Letter / A4	3M CG3300
Label	Letter	Avery 5160 – 5163
	A4	Avery L7159 – L7164
Recycled paper*1	Letter	Multi Use 20 lbs., 24 lbs.
	A4	——

*1 When using recycled paper, select Paper for Media Type on the Page Setup tab.

Transparency:

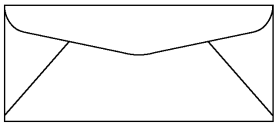
- To avoid damaging the printer, do not use ink jet transparencies.
- Transparencies and adhesive material used on labels should be stable at 205°C (400°F), the printer's maximum temperature.
- Re-using transparencies that have been fed through the printer once (for example, after jams or if the transparency is ejected without being printed) can reduce the life of the consumables and paper path components.
- When using transparencies, and if the print quality is poor, check to ensure the correct side is being printed.

Labels:

- With any label stock, the labels must completely cover the backing material.

Envelope:

It is recommended that you purchase only high quality envelopes with diagonal seams, as shown in the diagram below:



High quality envelopes have the following characteristics:

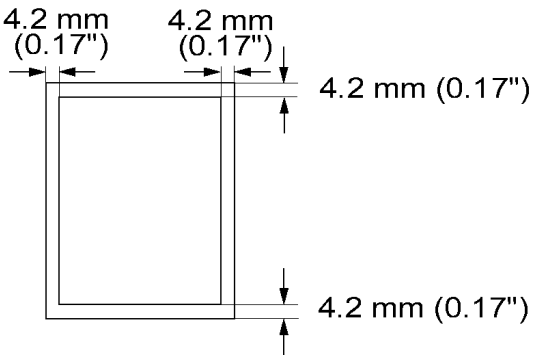
- A thin, sharply creased leading edge
- Paper weight of 90 g/m^2 (24 lbs.)
- Flat, free of curls, wrinkles, nicks, etc.

Note:

Wrinkles may occur in some case, even when using high quality envelopes.

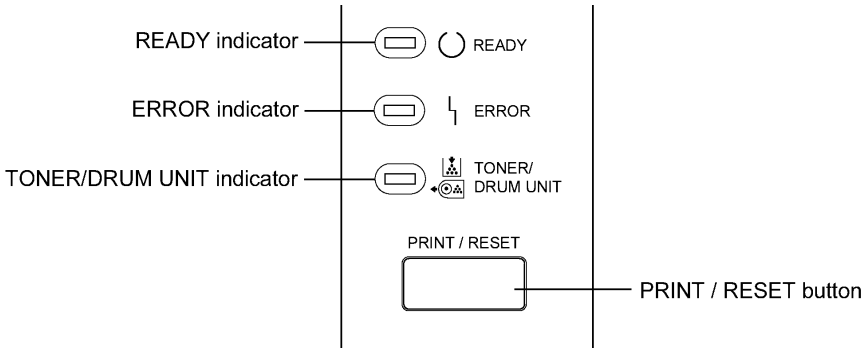
1.1.4.2. Margins and Print Area

The image (print area) is printed a bit smaller than the media size. 4.2 mm (0.17") is required for top, bottom and side margins. It may be needed to adjust the print margins in the application software to match the allowable print area.



1.2. Indicators

1.2.1. Printer Panel



1.2.2. Indicators

Three indicators show the following printer's status.

For detailed information on the printer status and recovery, see Section 10.1.

READY	ERROR	TONER/ DRUM UNIT	Printer Status
■	■	■	Printer is warming up (three LED indicators light one after another).
■	□	□ *	Printer is ready for printing or in the sleep mode.
□	■	□	Internal Error occurs. - - ->Turn the printer off and back on again. If the problem persists, service by an Authorized Panasonic Center is required.
☼	□	□ *	Printer is receiving data or data remains in printer's memory.
□	☼ *1	□	Front cover is opened. RAM overflow or Over run error occurred.
□	☼ *2	□	Lower tray is empty or upper tray is empty.
□	☼ *3	□	Manual feed tray is empty.
□	☼ *4	□	Paper jam occurred.
□	☼ *1	■	Toner is empty.
			Drum unit is not installed in the printer.
			Life cycle of the drum unit has expired.
□ *	□	☼	Drum unit is wearing out.
			Toner is low.

■ : on
□ : off
☼ : blinking

*; The status varies depending on the condition.

*1; LED On: 0.5 sec, Off: 0.5 sec *2; LED On: 1 sec, Off: 1 sec *3; LED On: 1 sec, Off: 0.5 sec

*4; LED On: 0.5 sec, Off: 2 sec

1.2.3. PRINT / RESET Button

The printer executes the following action depending on the printer status by pressing this button.

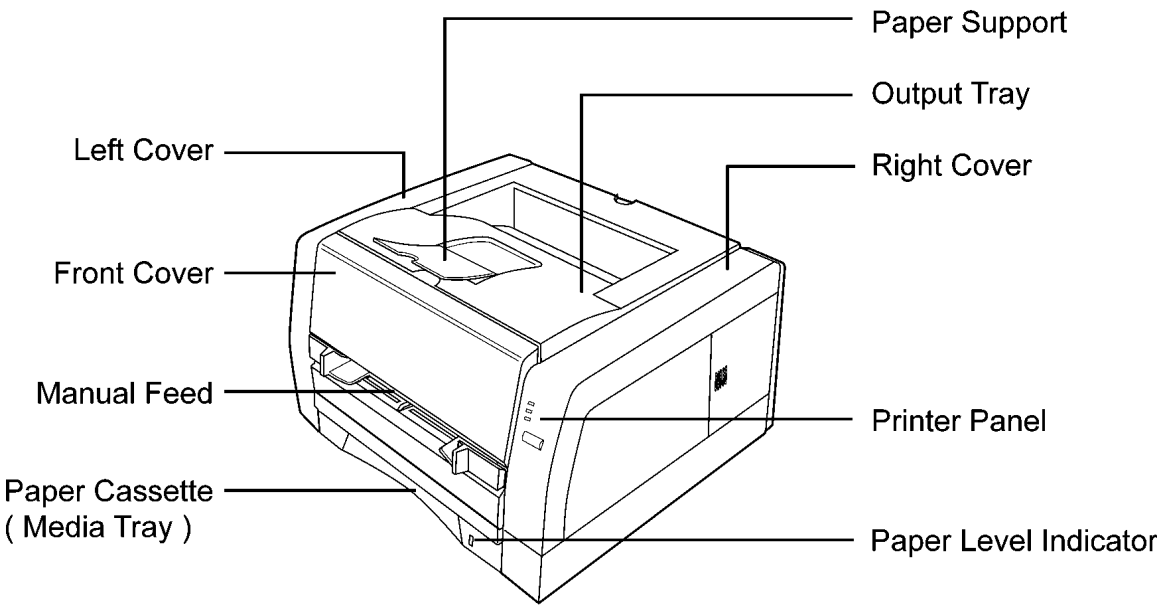
READY	ERROR	TONER/ DRUM UNIT	Printer Status
○	↳	▭*	To recover from the error status (overrun or memory overflow), press the **PRINT / RESET** button less than 5 seconds.
			To clear the remaining data, press the **PRINT / RESET** button **more than 2 seconds** until the ERROR and READY indicator blinks fast, then release it. The remaining data will be cleared.
▬	▭	▭*	To print the configuration page, press the **PRINT / RESET** button **until the ERROR indicator is turned (2 ~ 5 seconds).**
			To print the demo page, press the **PRINT / RESET** button **more than 5 seconds** until the ERROR indicator blinks fast, then release it. The ERROR indicator is turned off and the demo page will be printed.
▬	▭	▭*	To print the remaining data, press the **PRINT / RESET** button **less than 2 seconds**.
			To clear the remaining data, press the **PRINT / RESET** button **more than 2 seconds** until the ERROR and READY indicator blinks fast, then release it. The remaining data will be cleared.

▬ : on
▭ : off
▬ : blinking

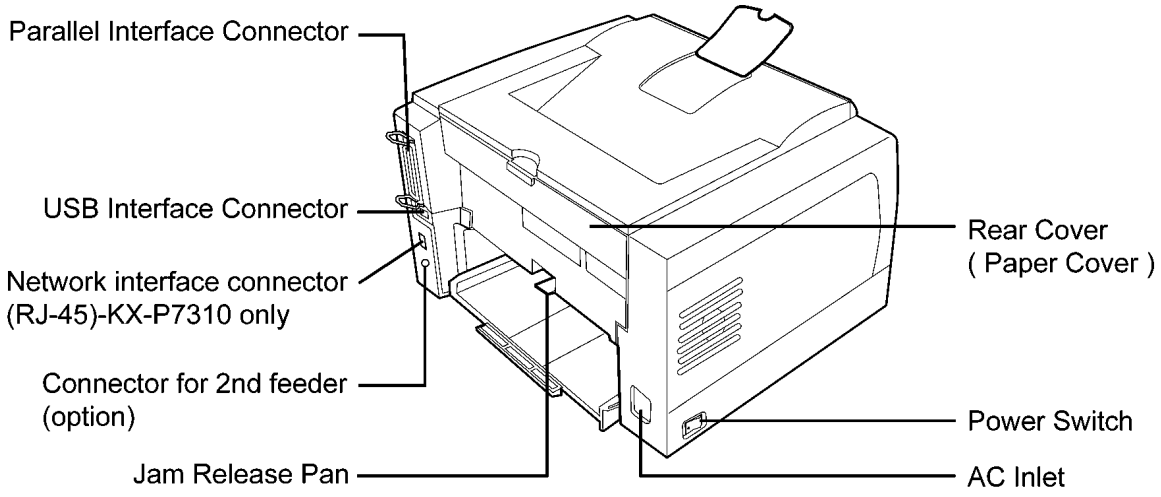
* The status varies depending on the printer's condition.

1.3. Parts Identification

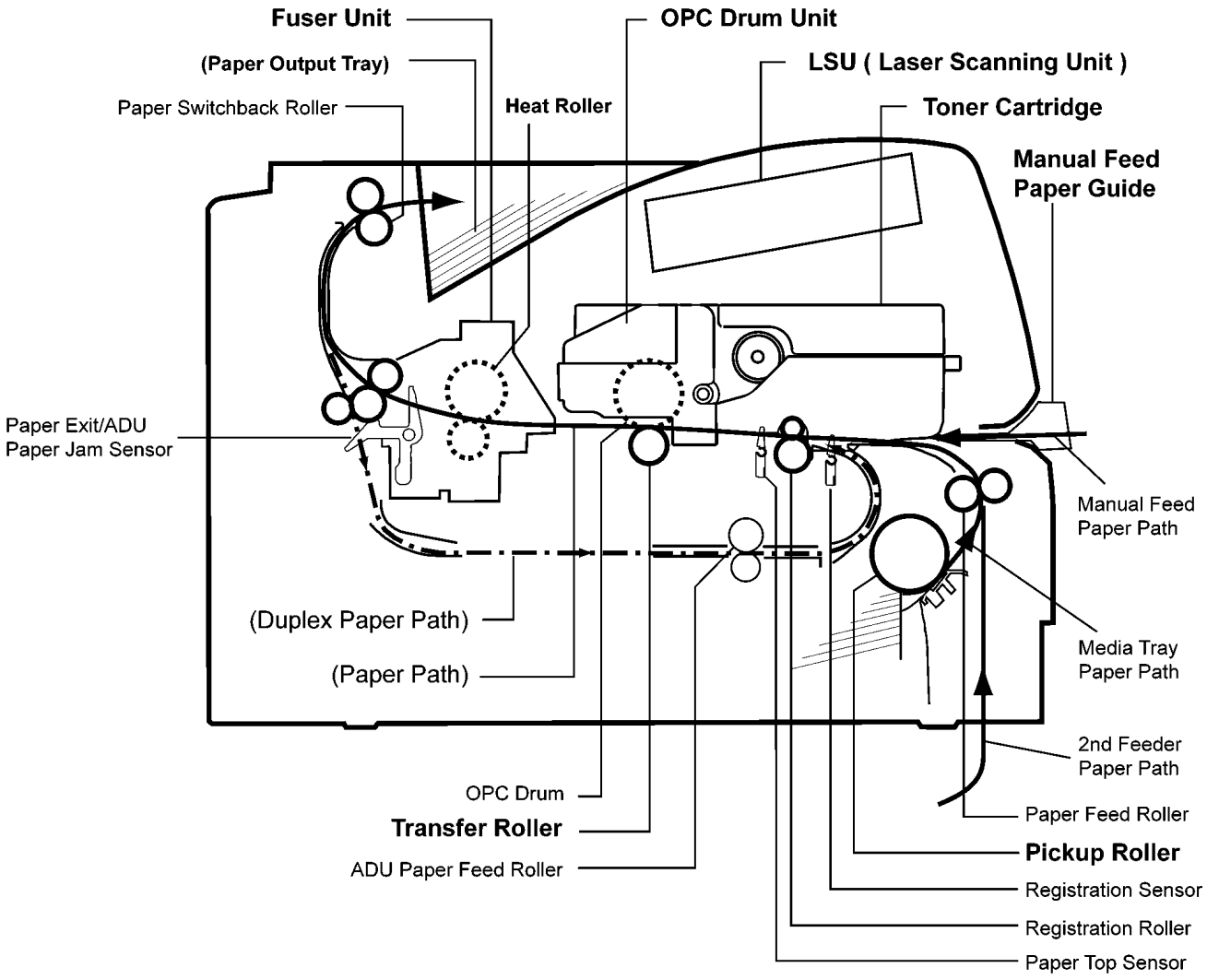
1.3.1. Front Side View



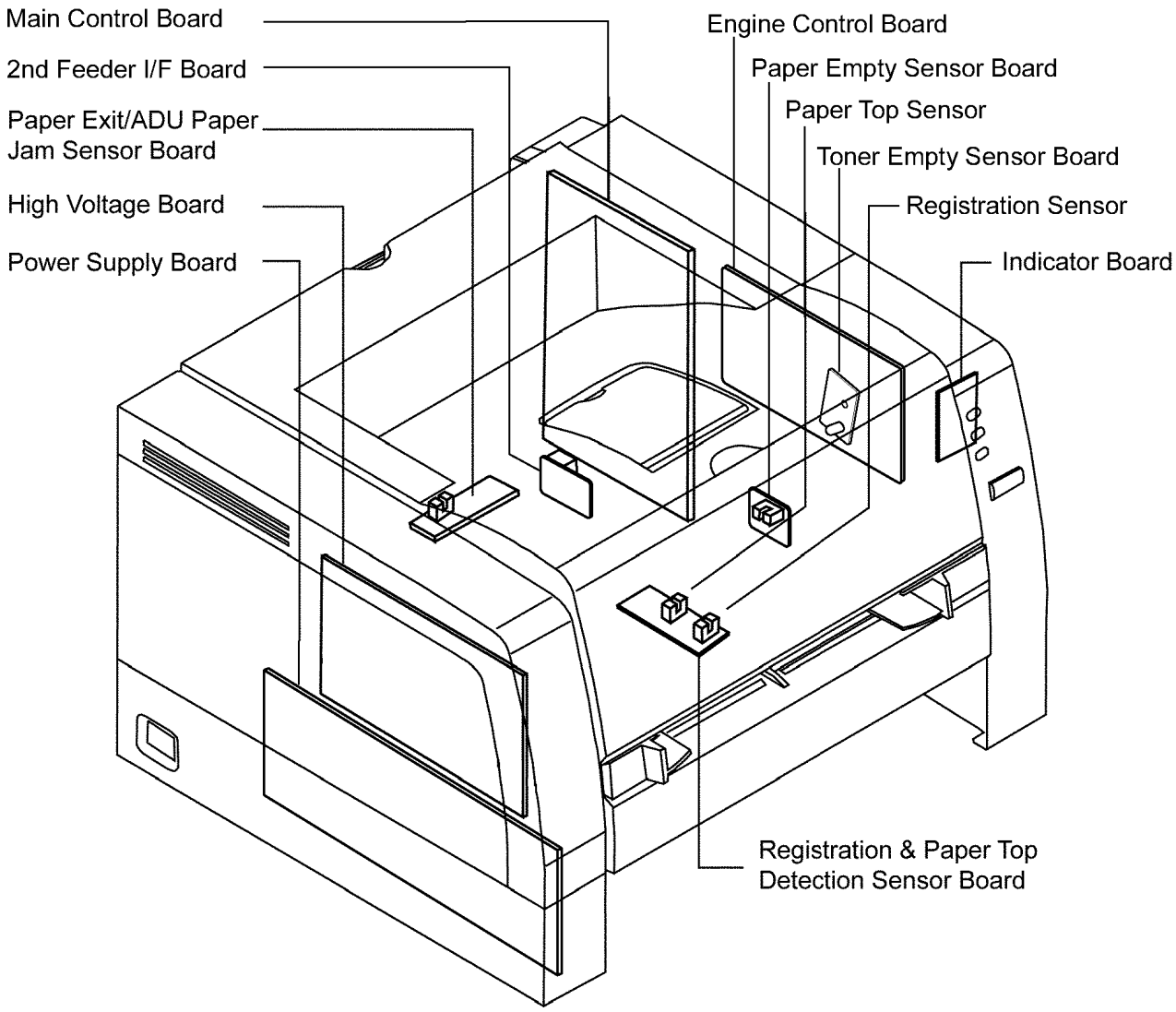
1.3.2. Rear Side View



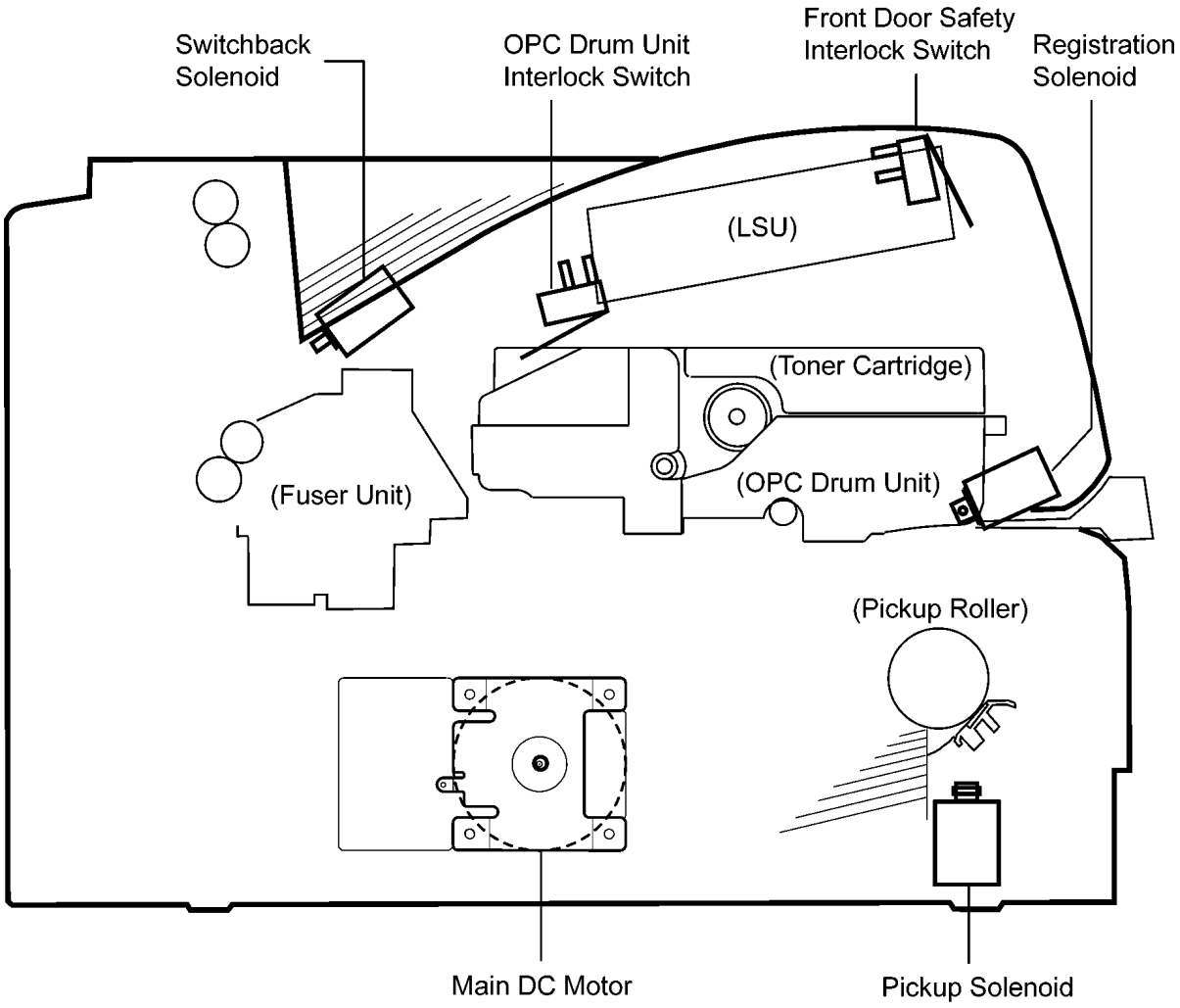
1.4. Component Layout and Paper Path



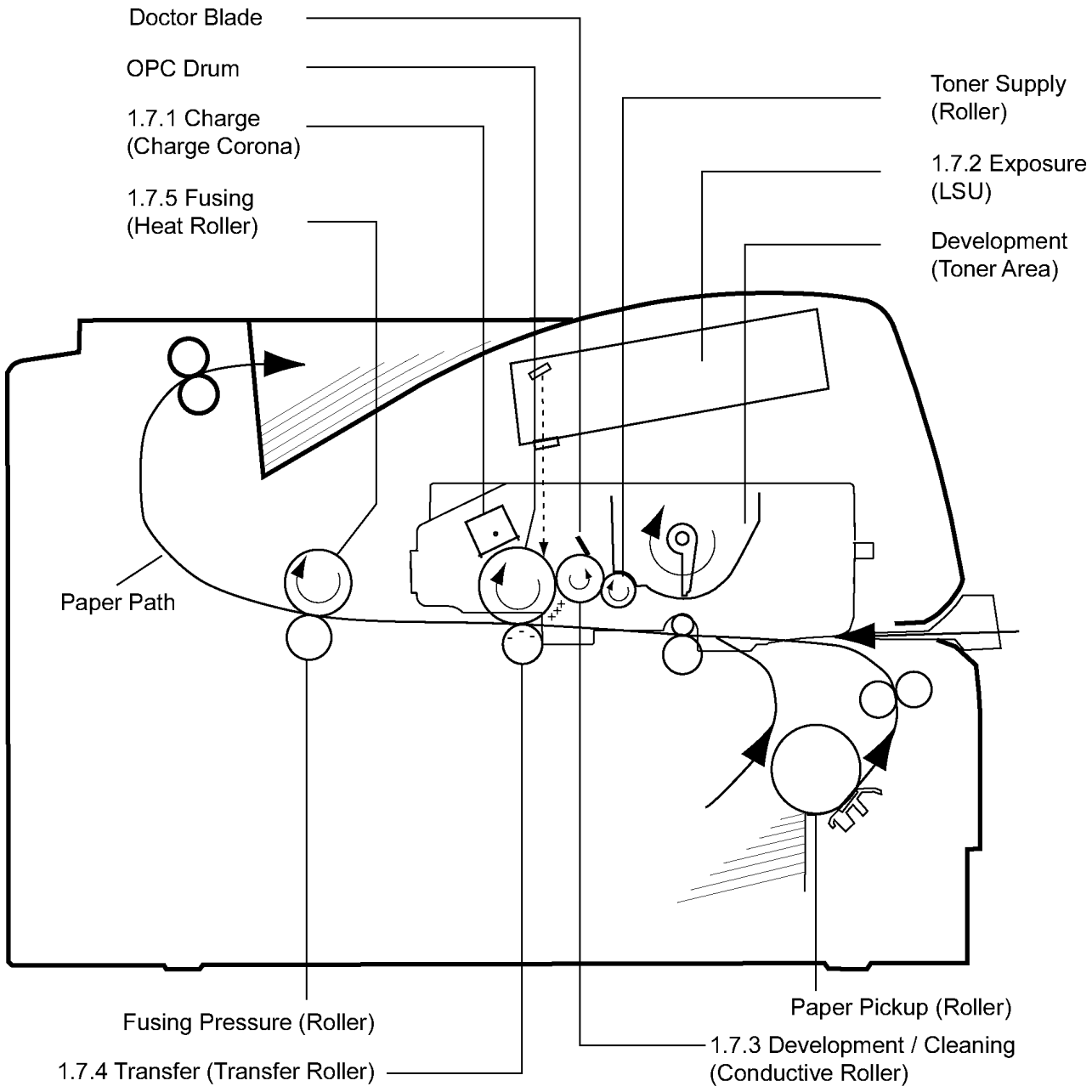
1.5. Electrical Components and Sensor Boards



1.6. Switches and Solenoids



1.7. Print Process



1.7.1. Charge

The charge corona applies a high, uniform positive charge to the surface of the organic photoconductor (OPC) drum. The charge level is approximately 900 VDC and remains because the OPC drum has a high electrical resistance when concealed in darkness.

1.7.2. Exposure

The laser beam passes through the collimator lens, is reflected by the polygon mirror, and is focused onto the drum after passing through an image-forming (f-θ) lens and a reflection mirror. Wherever the laser beam strikes the drum, the positive charge dissipates. A latent electrical image of two different voltages potentials, which corresponds to the original page, is formed on the OPC drum.

1.7.3. Development / Cleaning

Development:

Non-magnetic toner is supplied to the conductive roller by the toner supply roller. The toner on the conductive roller is positively charged by friction with the toner supply roller, and the doctor blade ensures a thin layer on the surface of the conductive roller. Wherever the conductive roller touches the drum, the positively charged toner is attracted to the latent image on the drum, and the latent image is converted to a visible toner image. A bias voltage of approx. 400 VDC is applied to the conductive roller to achieve maximum print quality.

Cleaning:

After transfer, residual toner remains on the drum surface, and for next printing, the residual toner reaches to the development area via charge and exposure. The charge level of the OPC corresponds to the white background is +900VDC, and the bias voltage of the conductive roller is approx. +400VDC. Therefor the positively charged residual toner on the OPC drum is attracted and collected to the conductive roller. The charge level of OPC after exposure is +100VDC. So, the printing area of the OPC is cleaned.

1.7.4. Transfer

As the paper is fed between the drum and the transfer roller, a high negative charge is applied to the back of the paper. The positive toner particles are then attracted from the drum surface to the paper. After transfer, the paper is separated from the drum surface by the curvature of the drum.

1.7.5. Fusing

The paper passes through the fuser rollers and is subjected to heat and pressure. The fusing temperature is approximately 200°C (392°F), and the pressure is approximately 0.37kg/cm (3.63N/cm). This bonds, or fuses, the toner into the paper.

1.8. Paper Feed

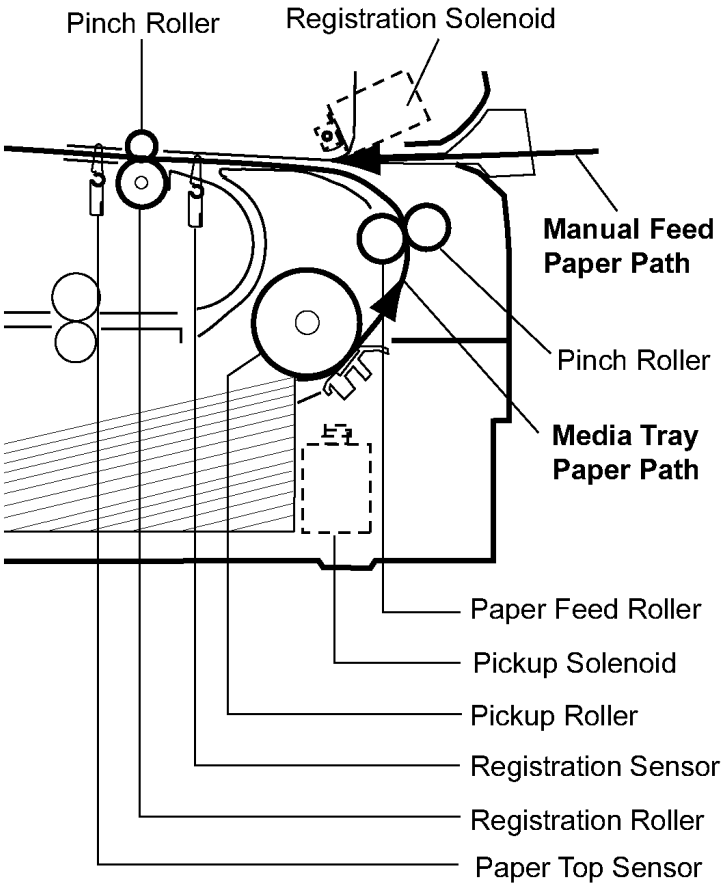
Media Tray

The main motor drives the pickup roller after the pickup solenoid is energized, which engages the pickup roller clutch and feeds a sheet of paper. The paper is pushed to the paper feed roller, which overdrives the paper slightly causing a buckle to ensure the paper is aligned with the stationary registration roller.

While triggering the registration sensor notifying the CPU paper is ready to feed. The paper at this point is the same as manual feed.

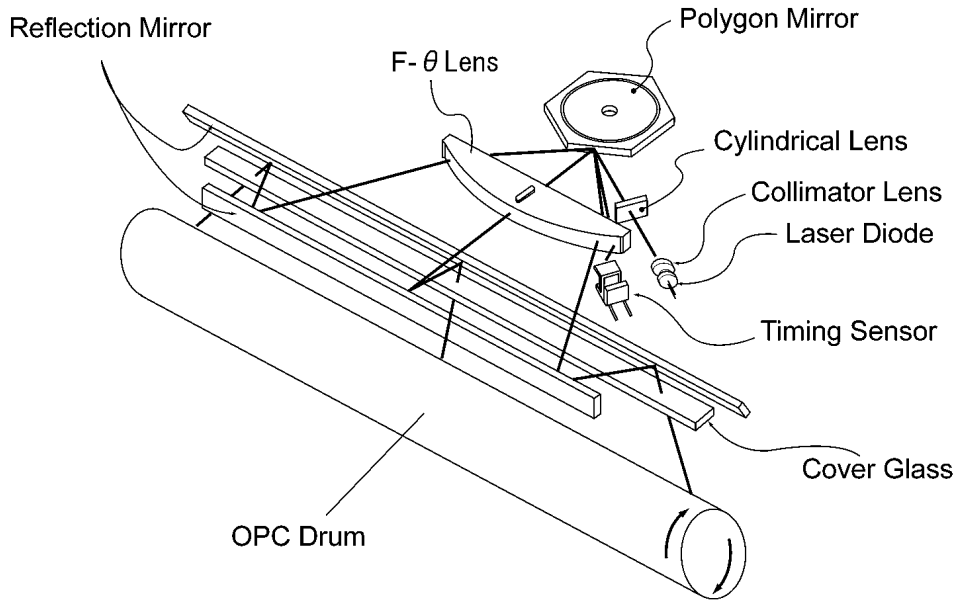
Manual Feed

When paper is inserted, it activates the registration sensor. At the proper time, the CPU energizes the registration solenoid that allows the registration roller to rotate, feeding paper to the top sensor.



1.9. Laser Scan Unit (Exposure)

1.9.1. Operation Theory

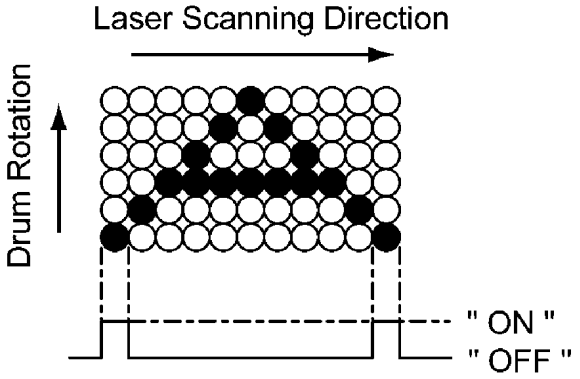


The light beam from the laser diode (light source) is modulated by the digital signal (nVIDEO) and converted to parallel light waves by the collimator lens. The beam is then sent to the rotating polygon mirror (polygon scanner), where it is reflected through the f–θ lens and then focused onto the OPC drum surface. The diameter of the beam is about 80 µm, and the light moves across the surface of the OPC drum in the scanning direction of right to left. As the drum rotates (sub-scans), a static image is formed where the laser beam touches the drum surface.

The laser beam is also deflected to the timing sensor. This sensor controls the start timing of scanning on the drum, providing a consistent left margin. The CPU uses the timing sensor to detect abnormal signals.

1.9.2. Laser Beam

The laser beam is pulsed on and off by the digital signal (nVIDEO) to form a latent image of two different voltage potentials on the drum, as shown below.



Turn Laser Beam ON and OFF corresponding with the images.

● : Laser Beam-"ON" (Drum discharged)

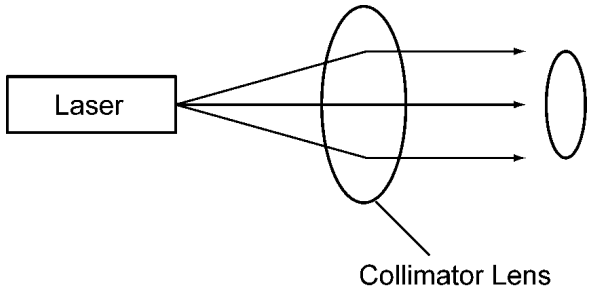
○ : Laser Beam-"OFF"

Laser Diode Specification

Item	Minimum	Standard	Maximum	
Oscillation Wavelength	770	785	795	nm
Output Light Power (OPC Drum Surface)	0.495	0.55	0.605	mW

1.9.3. Collimator Lens

The collimator lens converts light from the laser diode to parallel light. This aids in scanning and provides better convergence to a dot.



1.9.4. Polygon Scanner

The polygon scanner consists of a 6-sided mirror directly driven by a brushless DC motor at a rate 25,773.20 rpm. The laser beam is reflected across the OPC drum by the mirror faces and produces the scan. One mirror face is equal to one main scan. This unit features stable line scanning speed, precision mirror surface reflection angle, reflect-free surfaces, and instant start.

Polygon Scanner Specifications

Item	Specification	
Mirror	6	faces
Revolution	25,773.20	rpm

1.9.5. Cylindrical Lens and f-θ Lens

Each of the polygon mirror surfaces has a slight imperfection. This prevents the beam from scanning the OPC drum surface at the constant interval in the sub-scan direction. The cylindrical lens and f-θ lens are used for correcting this uneven laser scanning.

1.9.6. f-θ Lens

This lens ensures that the beam scans across the surface of the OPC drum at a constant rate. The beam is refracted to parallel light as it passes through the lens to ensure that the dots at the edge of the drum and at the center of the drum are equally spaced. This lens also provides a set focal length for laser beam.

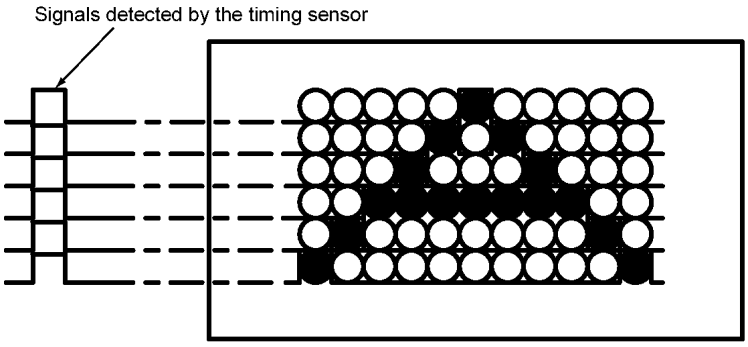
f-θ

Specifications

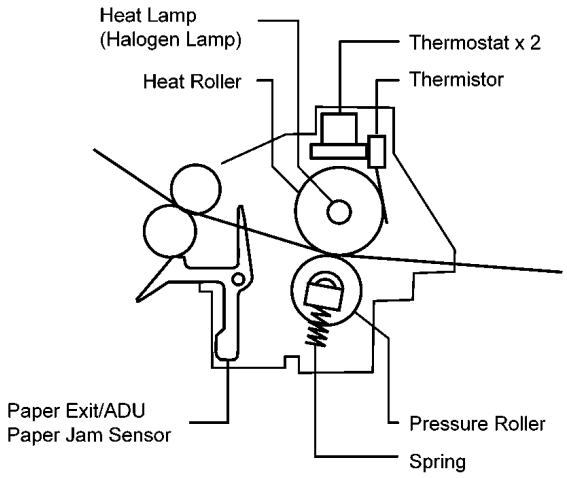
Item	Specification	
Scanning Width	207.43	mm
Focusing Light Spot Size	75 x 80	µm

1.9.7. Timing Sensor

This sensor detects the laser beam and determines the start timing for scanning. A pin photodiode is used as the timing sensor.



1.10. Fuser Unit



A 800W heat lamp (halogen lamp) heats the surface of the teflon-coated heat roller to approximately 200°C (392°F), a thermistor monitors the heat roller temperature, and the CPU controls the ON/OFF timing of the lamp.

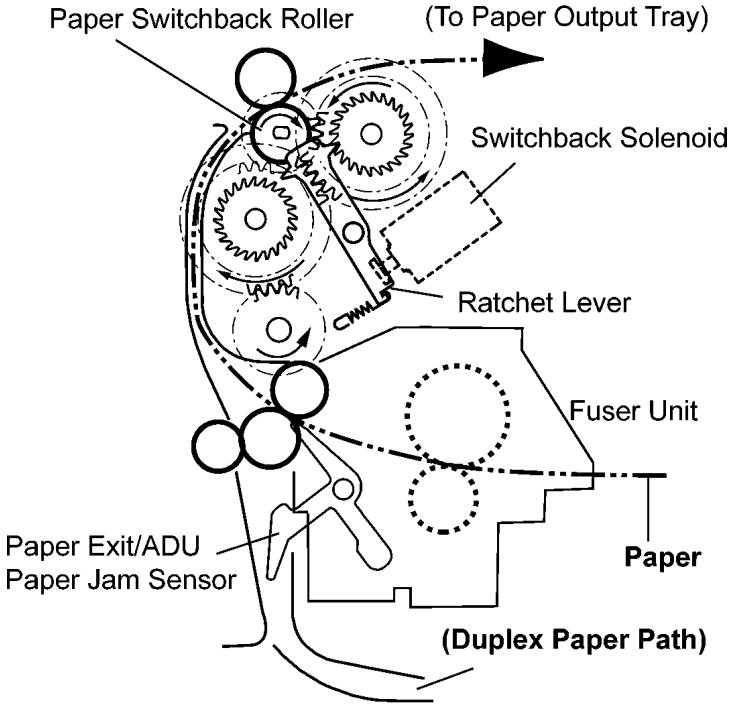
The thermostat is mounted 2.5mm away from the heat roller. If the ambient temperature reaches 180°C (356°F), the thermostat is opened, and power is removed from the heat lamp. The surface of the thermostat is not as hot as that of the heat roller. When the thermostat opens, the surface of the heat roller may reach 300°C (573°F), and the system displays E30 (or E31). If the thermistor opens, the system displays E32. If by chance the thermostat malfunctions an another thermostat opens.

The pressure roller is kept in contact with the heat roller through 2 pressure springs, which apply a pressure of approximately 0.37 kg/cm (3.63 N/cm). Drive is supplied from the main motor via intermediate gears.

1.11. Paper Ejection and Paper Switchback

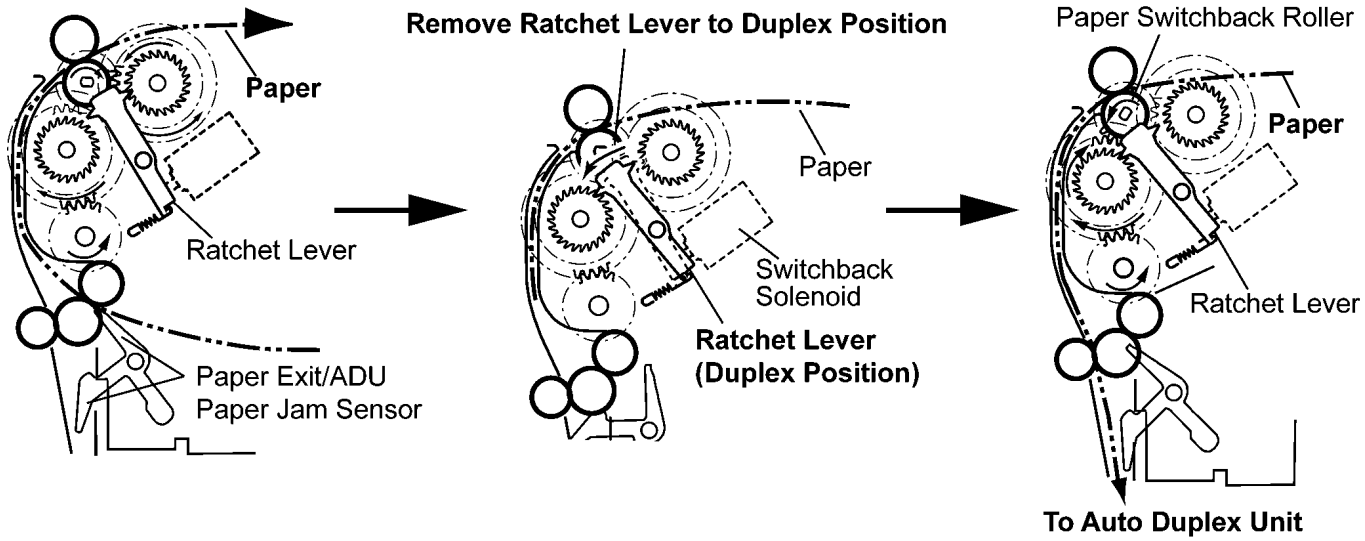
A. Normal Printing Mode (Not Duplex Mode)

After fusing, paper is fed to the output tray by the switchback roller and switchback pinch roller. The paper exit/ADU paper jam sensor detects paper. If paper does not arrive at the sensor within a predetermined period of time, “Jam at A” is displayed, and if paper remains at the sensor beyond a predetermined period, “Jam at B” is displayed on the computer screen. Paper is ejected face down and stored in the output tray.



B. Duplex Mode

After fusing, paper is fed to the output tray by the switchback roller and switchback pinch roller. The paper exit/ADU paper jam sensor detects paper. If paper does not arrive at the sensor within a predetermined period of time, “Jam at A” is displayed on the computer screen. At the specified time after the sensor detects the bottom of paper, the switchback roller rotates in reverse direction, turning on the switchback solenoid to move the ratchet lever to Duplex Position. As a result, the paper is fed to the development area through the Auto Duplex Unit (ADU) (see section 1.4 Component Layout and Paper Path). If paper remains at the sensor beyond a predetermined period, “Jam at E” is displayed. Paper is ejected face down and stored in the output tray.



2 Lead Free Solder

2.1. About Lead Free Solder

Note:

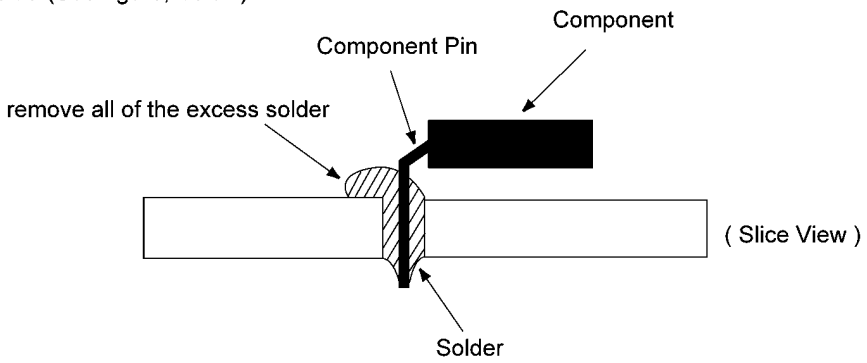
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

The Lead Free Solder (PbF) is made from Tin, (Sn), Silver, (Ag), and Copper, (Cu).

This model, and others like it, manufactured using lead free solder will have PbF marked on the PCB. For service and repair work we suggest using the same type of solder although, with some precautions, standard Pb solder can also be used.

Caution

- PbF solder has a melting point that is 50° ~ 70° F, (30° ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700° ± 20° F, (370° ± 10°C). In case of using high temperature soldering iron, please be careful not to heat too long.
- PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F, (600°C).
- If you must use Pb solder on a PCB manufactured using PbF solder, remove as much of the original PbF solder as possible and be sure that any remaining is melted prior to applying the Pb solder.
- When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See figure, below).



2.2. Suggested PbF Solder

We recommend you to use the following solder when re-soldering component for repair. Before using other Pb free solder than the following solder, be sure to confirm a solder maker you appoint has made license agreements to be required when using Pb free solder legally.

Supplier: Senju Metal Industry Co., Ltd. (http://www.senju-m.co.jp)

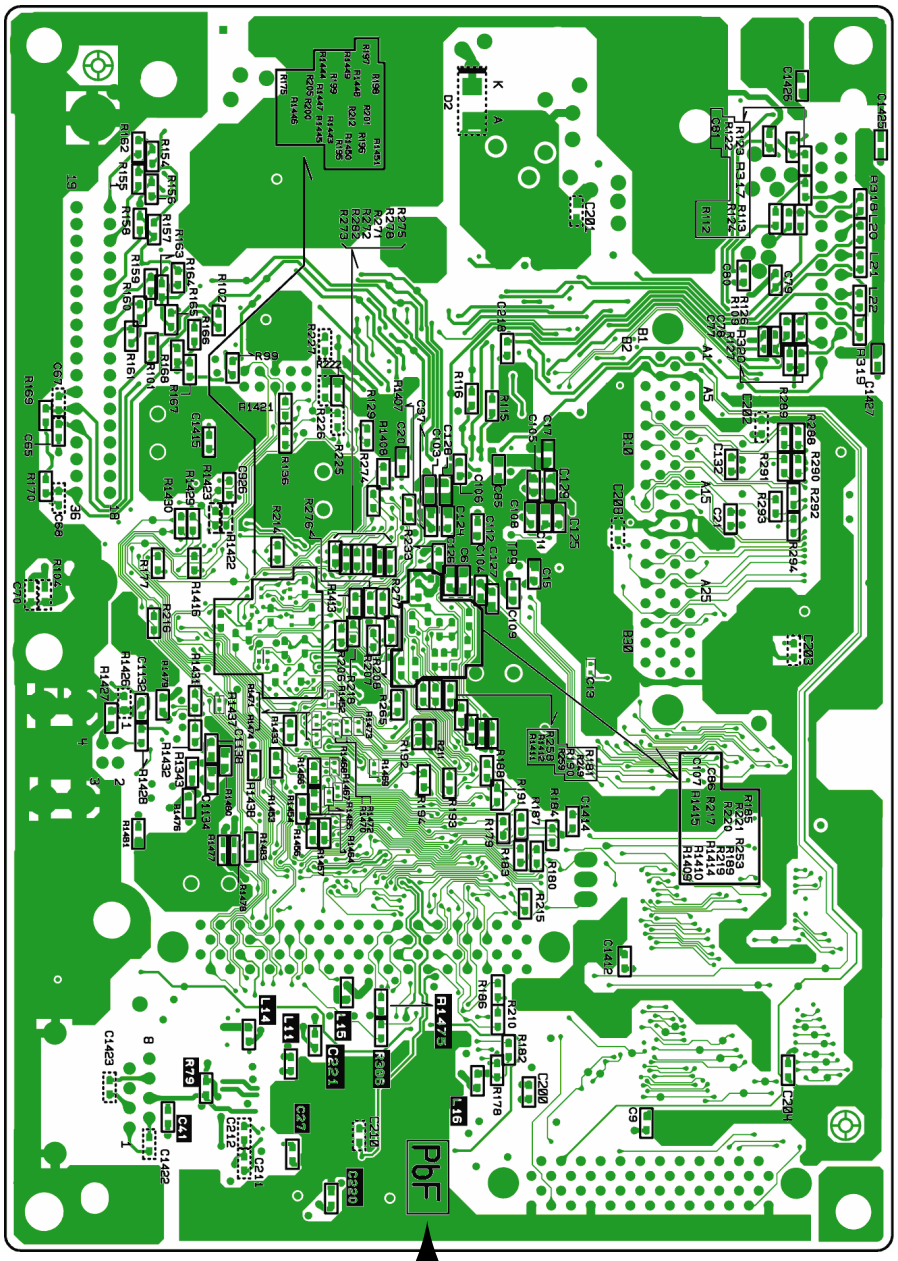
Part Description in Senju: ECO SOLDER RMA02 P3 M705 Series

Note:

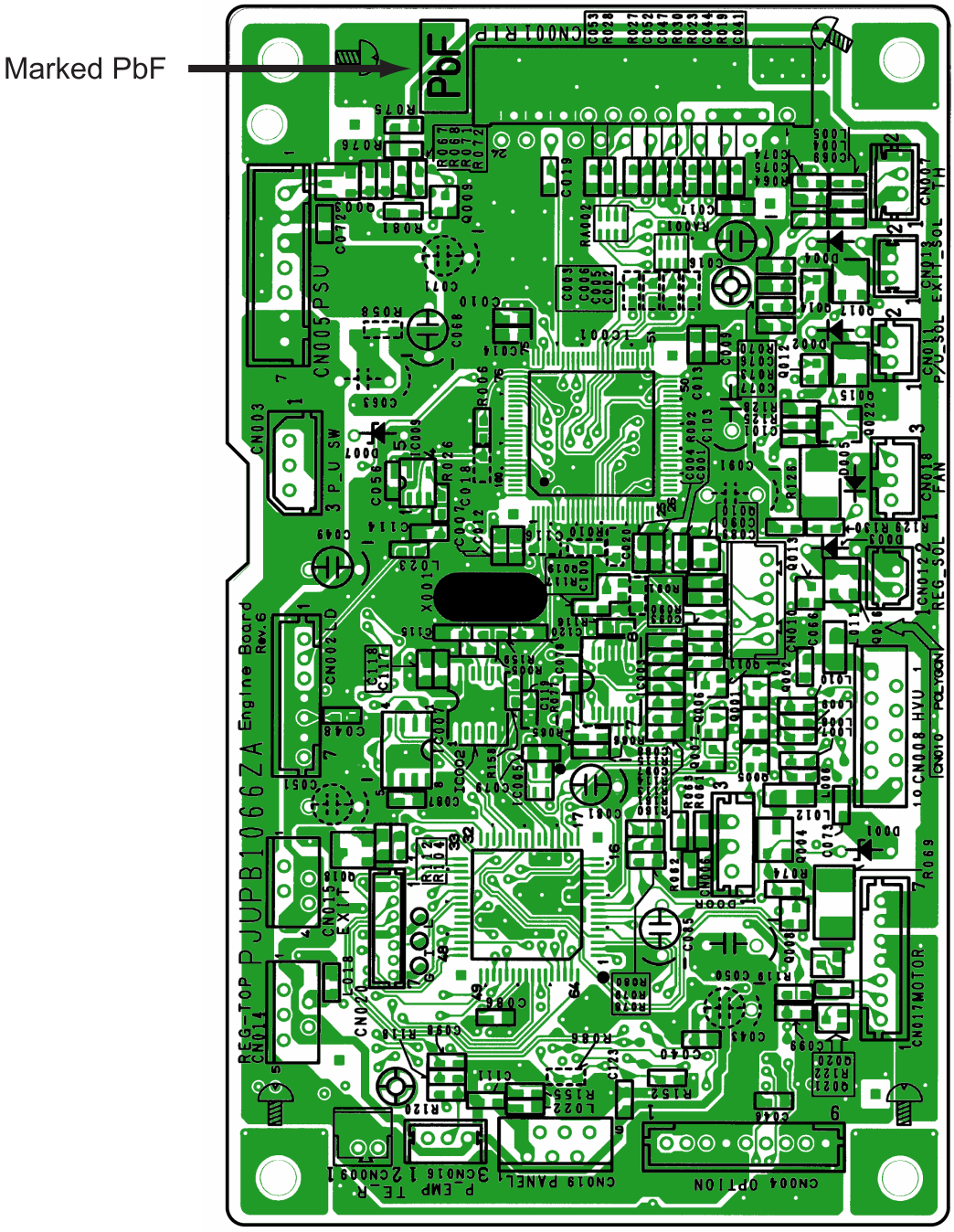
When the recommended PbF solder is not available at Senju Metal Industry Co., Ltd., see section 11.17 PbF Solder Service Part Number.

2.3. How to recognize that Lead Free Solder (PbF) is used

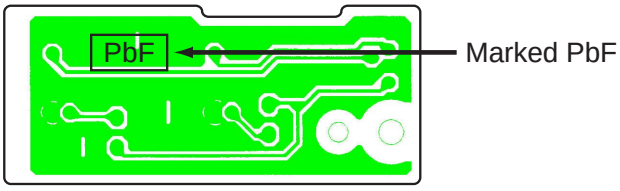
2.3.1. Main Control Board



2.3.2. Engine Control Board



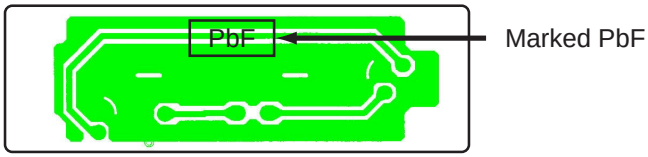
2.3.3. Registration & Paper Top Detection Sensor Board



(Registration & paper Top Detection Sensor Board)

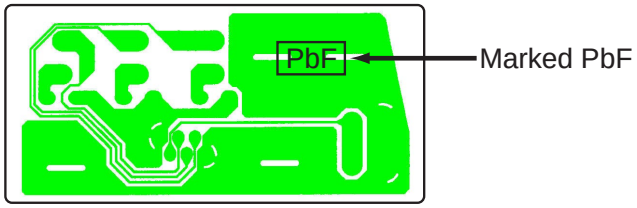
2.3.4. Paper Exit/ADU Paper Jam Sensor Board

(Paper Exit/ADU Paper Jam Sensor Board)

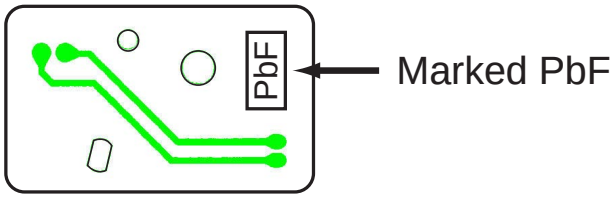


2.3.5. Indicator Board

(Indicator Board)

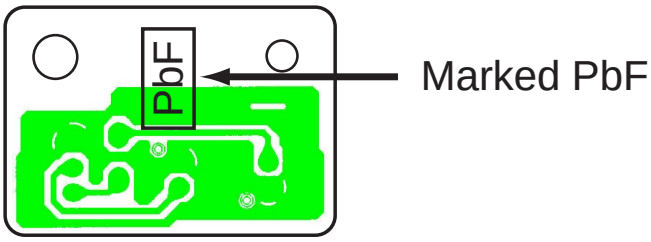


2.3.6. Toner Empty Sensor Board



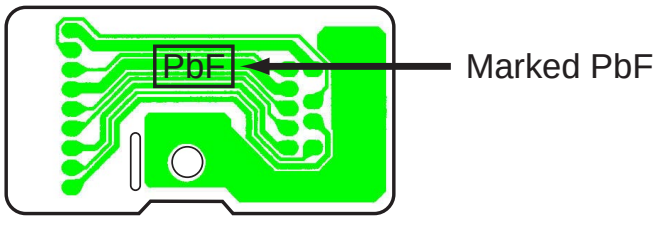
(Toner Empty Sensor Board)

2.3.7. Paper Empty Board



(Paper Empty Board)

2.3.8. 2nd Feeder I/F Board



(2nd Feeder I/F Board)

3 Installation, Setup, and Repacking

3.1. Installation Requirements

3.1.1. Environment

1. Temperature Range :10 °C - 32.5 °C (50 °F - 90.5 °F) (Temperature fluctuation ± 10 °C per hour or less)
2. Humidity Range :20% RH - 80% RH (Humidity fluctuation ± 20 °C per hour or less)
3. Printer Weight :10 kg (22 lbs.)
4. Place the unit on a stable, level surface.
5. Do not install the unit under the following conditions.
   a. Extremely high or low temperature
   b. Extremely high or low humidity
   c. Direct exposure to sunlight
   d. Areas of high dust concentration
   e. Areas of poor ventilation
   f. Areas exposed to chemical fumes
   g. Areas with extreme vibration
   h. Directly in air conditioning flow

3.1.2. Ventilation Requirements

Ventilation space is needed around the printer, more than 20 mm (0.8 inch) between the printer and a wall.

3.2. Setup

3.2.1. Removing the Packing Material

1. Remove the printer from the plastic bag.
2. Remove all adhesive tape from the printer.

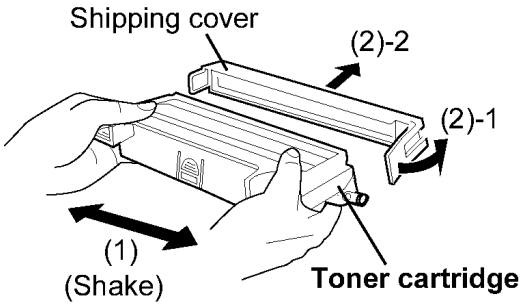
Note:

Please do not throw away the packing materials. They may be required to ship or transport the printer. To provide optimum print quality, the unit must be kept upright and level at all times.

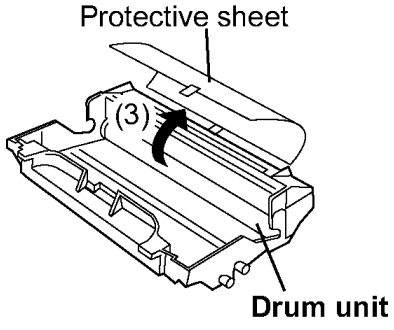
3.2.2. Installing the Toner Cartridge and Drum Unit

(1) Shake the toner cartridge.

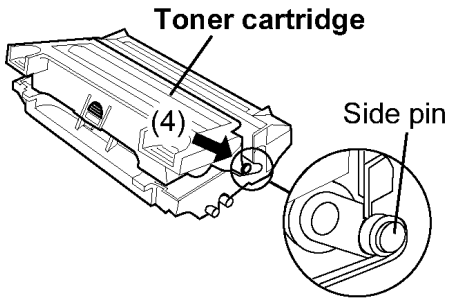
(2) Remove the shipping cover.



(3) Remove the protective sheet from the drum unit.



(4) Insert the side pins of the toner cartridge into the slots of the drum unit.

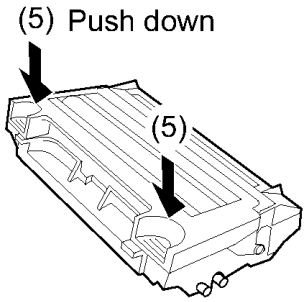


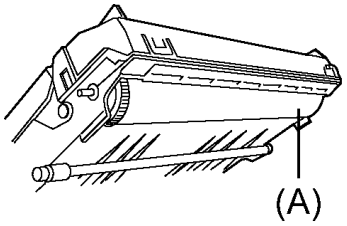
(5) Push down the toner cartridge as shown to lock in place.

Note:

To prevent any damage to the drum unit,

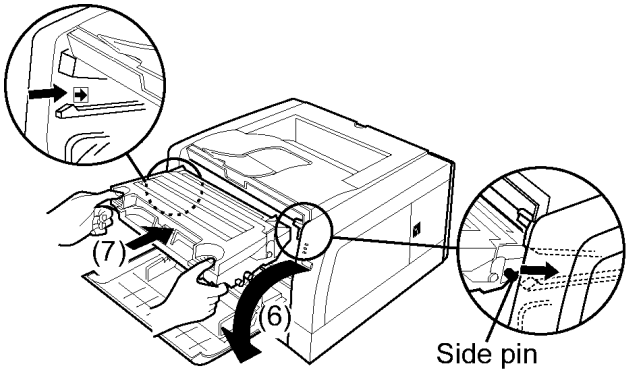
- Do not touch the drum surface (A).
- Do not expose to light for more than 5 minutes.
- Do not expose to direct sunlight.





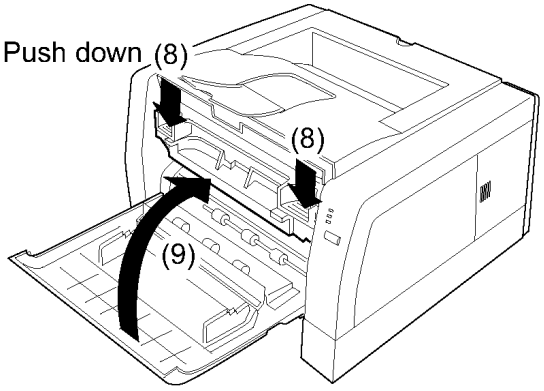
(6) Open the front door.

(7) Insert the drum unit into the printer [insert the side pins of the drum unit into the groove (label ➡)].



(8) Push down as shown to lock in place.

(9) Close the front door.

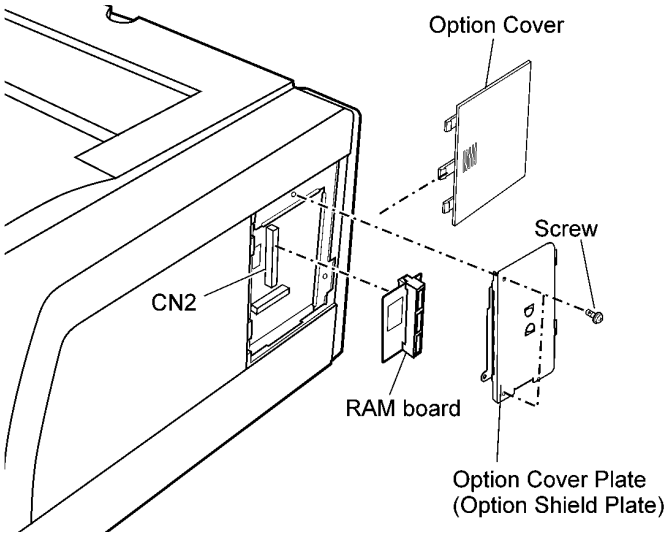


3.2.3. Installing the RAM Board

RAM Board (KX-PEM12 or KX-PEM13) are Options.

(1) Remove the Option Cover and Option Cover Plate (2 screws).

(2) Install RAM Board in CN2.



3.3. Repacking

Prepare the unit before shipping.

Note:

It is highly recommended that users keep the original carton and **ALL** packing materials. Please follow these instructions when transporting or shipping the printer.

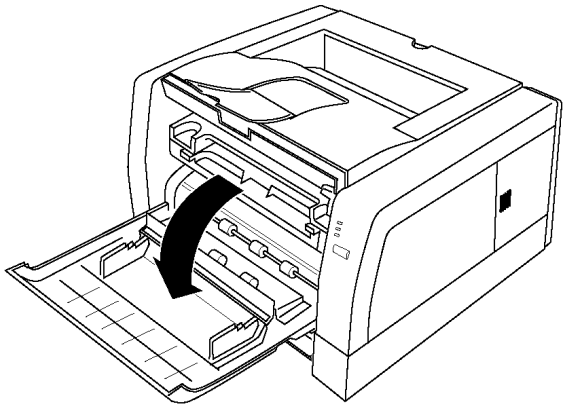
- The printer weights about 10 kg {22 lbs}.
- Please use the original carton and all of the original packing materials.
- Improper repacking of the printer may result in a service charge to remove spilled toner.
- Since the printer uses dry toner, extreme care must be taken when handling. The printer should be handled in the upright (vertical) position.
- Do not ship with drum unit installed in printer.

Material Required

– Original cartons and packing materials
– Newspaper or drop cloth
– Shipping tape and scissors

(1) Turn off the printer, remove the power cord and all interface cables.

(2) Open the front cover.

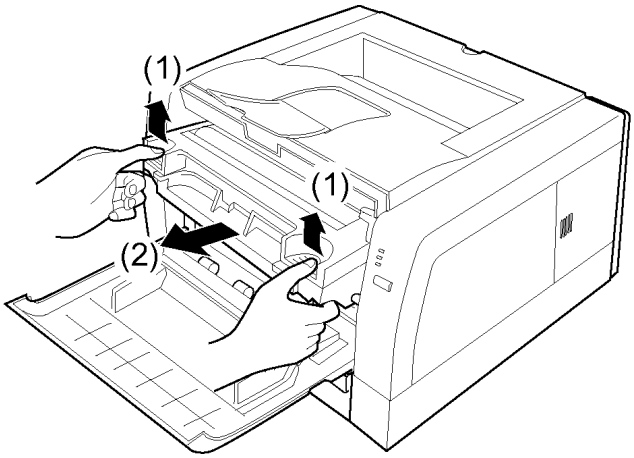


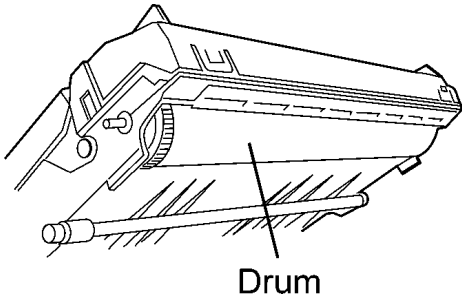
(3) Lift the drum unit up (1) and slide it out of the printer (2).

- To avoid possible toner spillage, it is recommended to place the drum unit on newspaper or a drop cloth.

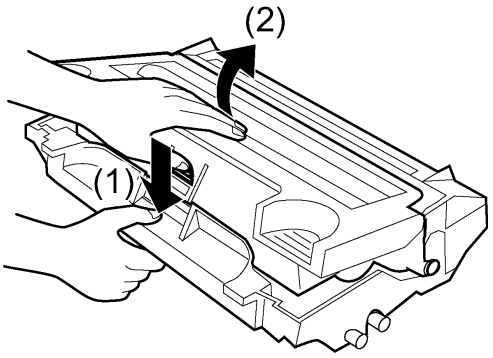
Caution:

- To prevent any damage to the drum unit, observe the following precautions;
  – Do not touch the black drum surface illustrated below.
  – Do not expose the drum unit to light for more than 5 minutes.
  – Do not expose the drum unit to direct sunlight.
  – Do not keep the drum unit near dust or dirt.
  – Do not place the drum unit in a high humid area.

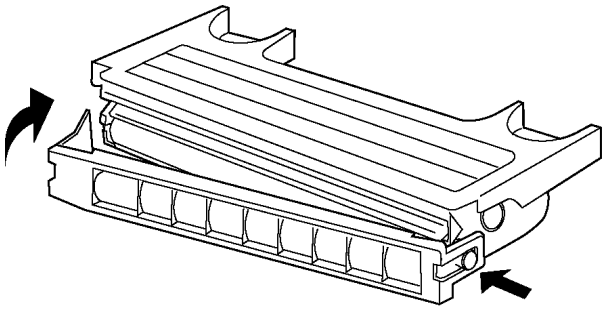




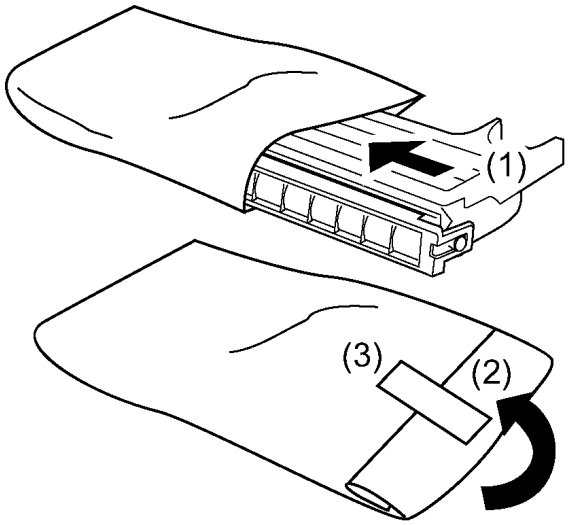
(4) While pushing the drum unit (1), lift the toner cartridge up (2).



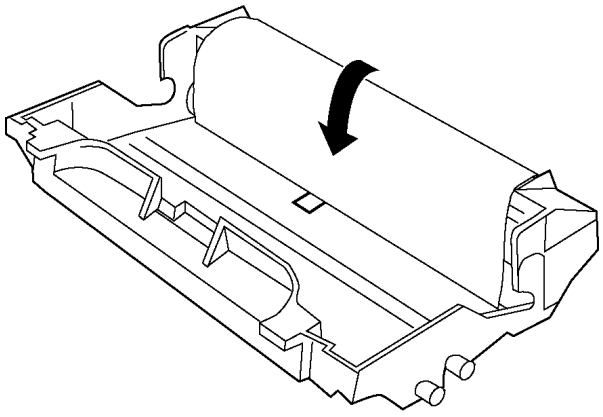
(5) Replace the shipping cover on the toner cartridge.



(6) Insert the toner cartridge into a plastic bag (1), seal the end of the bag tightly (2), and tape closed (3).



(7) Wrap the drum unit with the protective sheet to protect the drum surface.



(8) Insert the drum unit into a plastic bag and seal the end of the bag tightly.

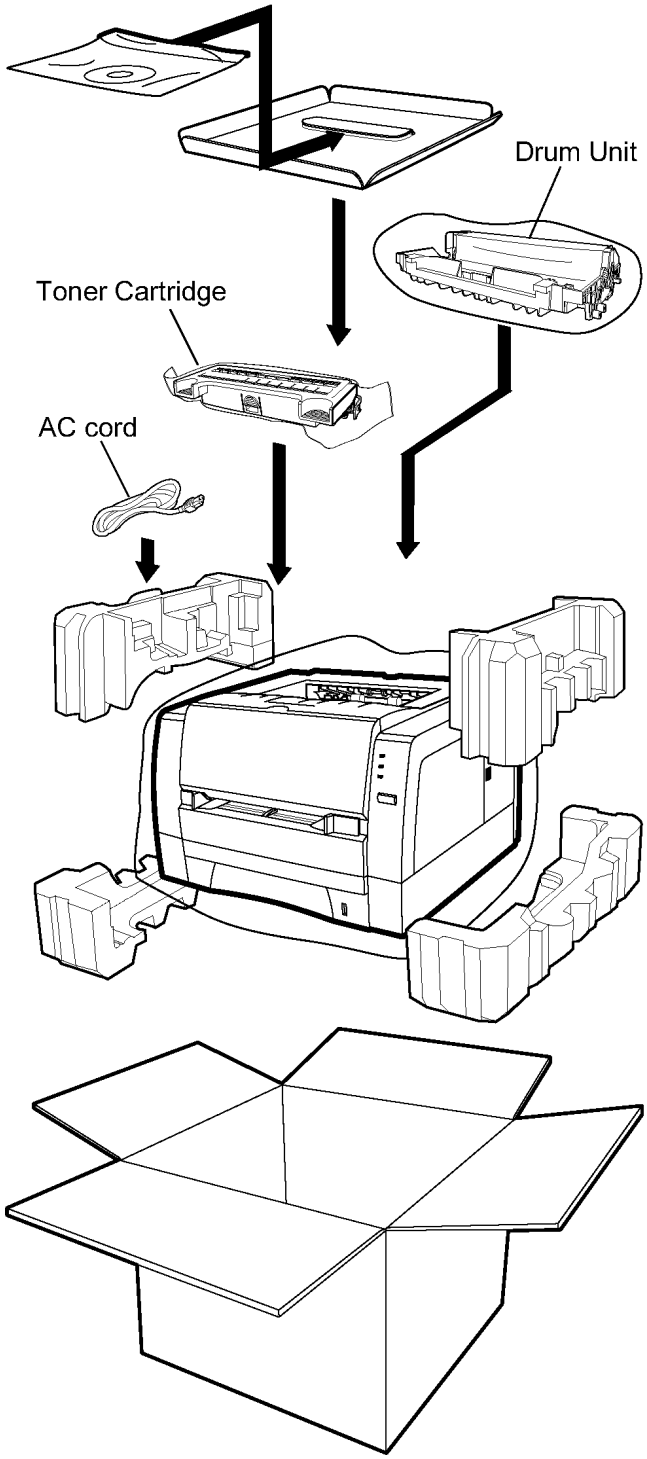
(9) Wipe off any loose toner in and around the printer.

Note:

- If a toner vacuum is available, it is the best tool for cleaning spilled toner. Do not use a standard office or home vacuum; the toner **will not** be retained by typical vacuum dust collectors.

(10) Close the front cover.

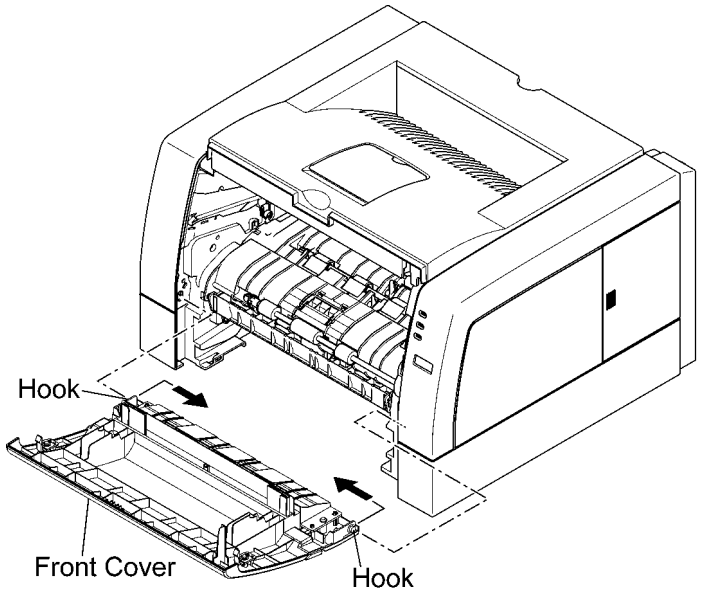
(11) Repack the printer in the box as shown.



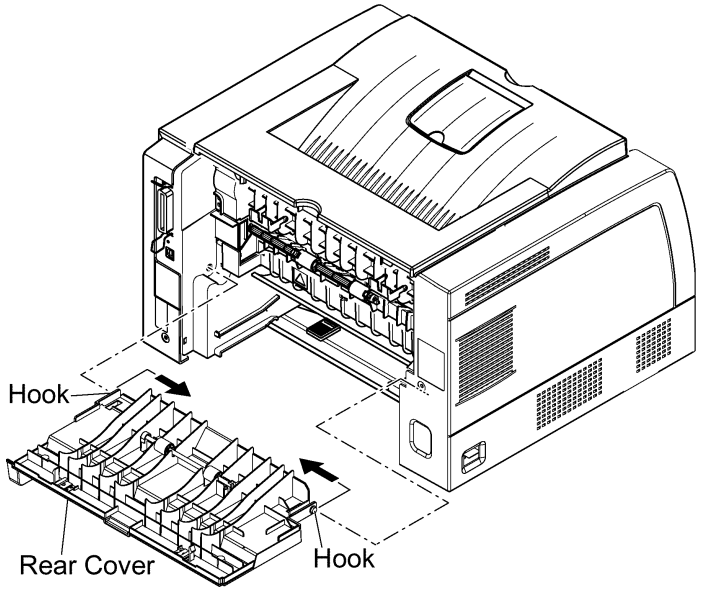
4 Removal and Replacement Procedures

4.1. Front and Rear Covers

(1) Remove the Front Cover by releasing the hooks.



(2) Remove the Rear Cover by releasing the hooks.

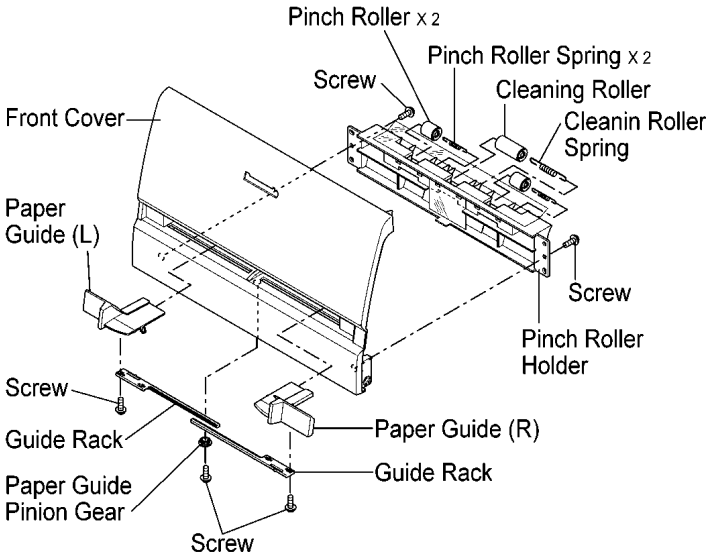


4.1.1. Front Cover Disassembly

(1) Remove the Pinch Roller Holder Assembly (2 screws).

(2) Remove the Paper Guide Pinion Gear (1 screws).

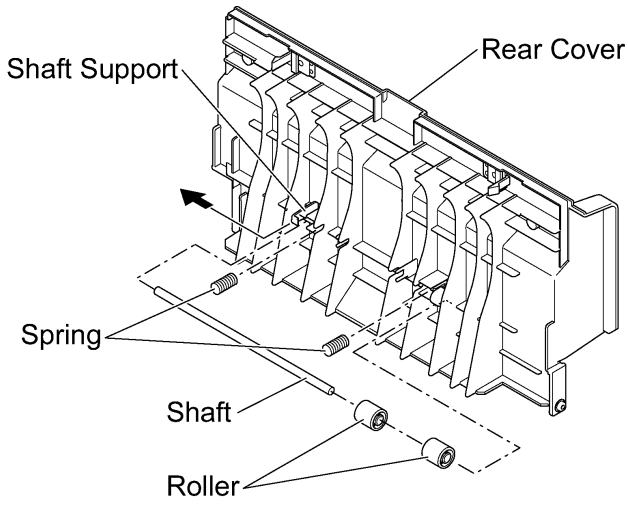
(3) Remove the Guide Racks (2 screw).



4.1.2. Rear Cover Disassembly

(1) Release the Shaft from the hook by pushing the shaft support in the arrow direction.

(2) Separate the Shaft, 2 Rollers and 2 Springs.



4.2. Right, Left and Top Covers

4.2.1. Right Cover

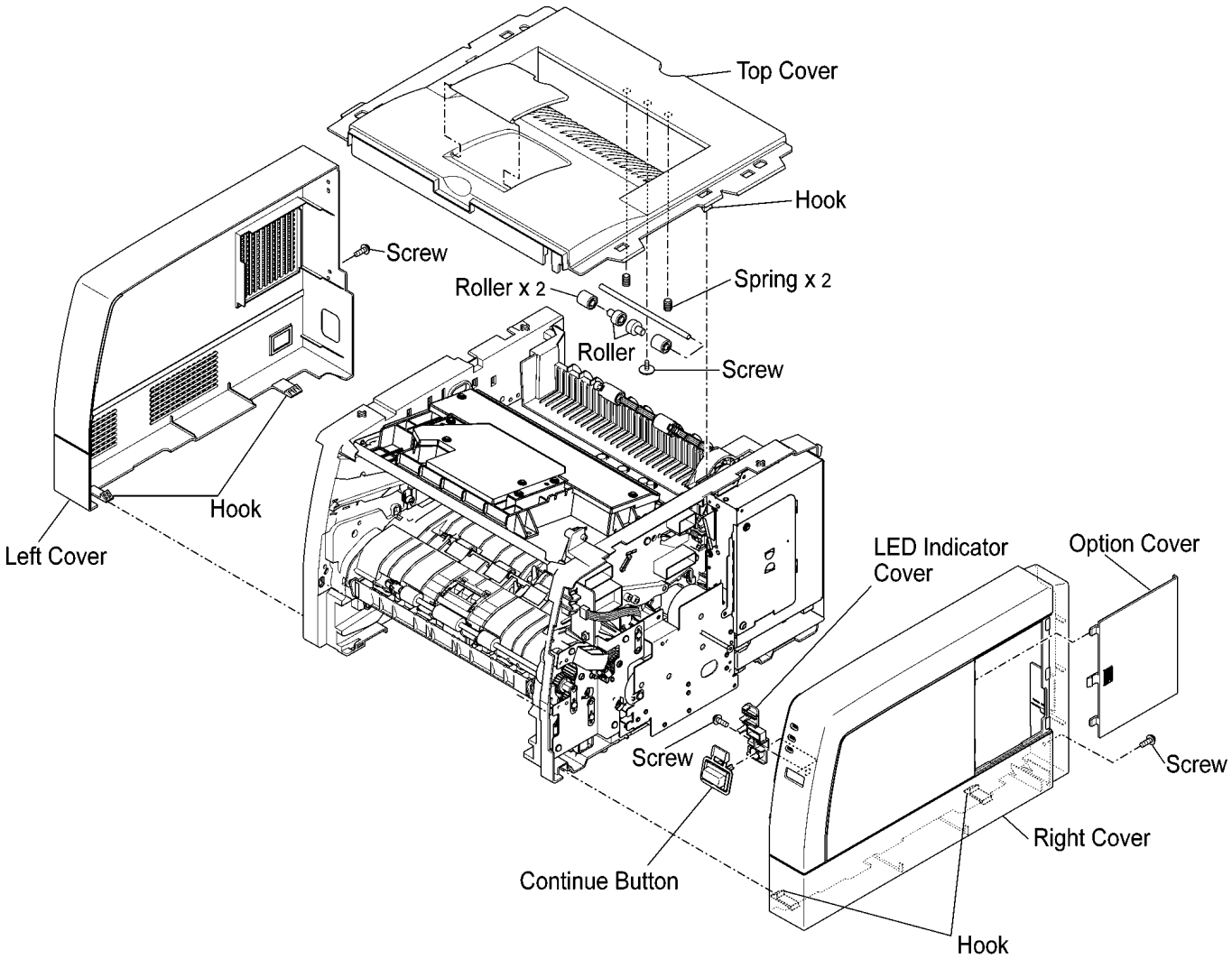
1. Remove the screw.
2. Release the 2 hooks from the bottom side of printer.
3. Remove the Right Cover.
4. Remove the LED Indicator Cover and Continue Button (1 screw).

4.2.2. Left Cover

1. Remove the screw.
2. Release the 2 hooks from the bottom side of printer.
3. Remove the Left Cover.

4.2.3. Top Cover

1. Release the 2 hooks from both sides of the printer.
2. Remove the Top Cover.

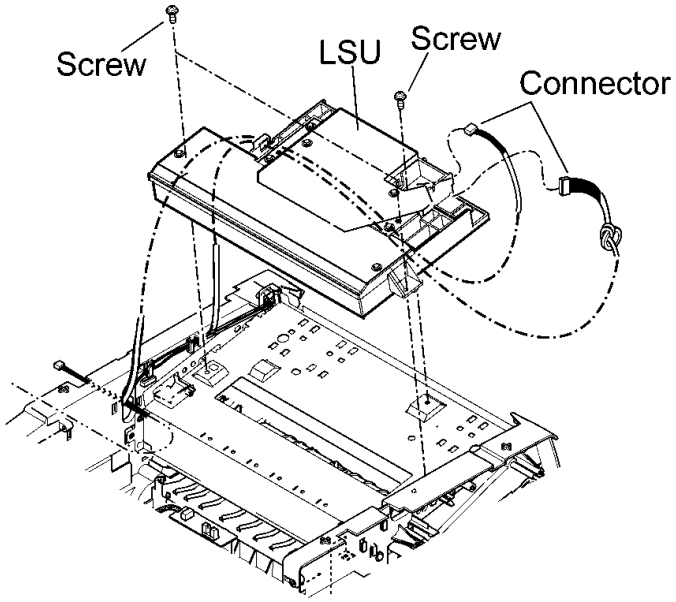


4.3. Laser Scanning Unit (LSU)

Before handling, remove the Right, Left and Top Covers (see Section 4.2).

(1) Remove the 3 screws.

(2) Disconnect the 2 connectors from the LSU.



4.4. High Voltage Board and Power Supply Unit

Before handling, remove the Left Cover (see Section 4.2).

4.4.1. High Voltage Board

(1) Remove the screw (A) and 5 screws (B).

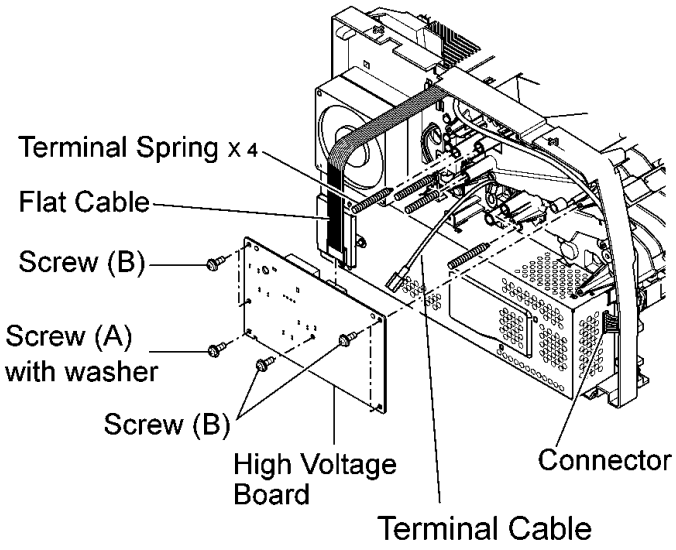
Caution :

Screw (A) is different from screws (B). When reinstalling the screw, return it to the original position.

(2) Disconnect the Flat Cable from the High Voltage Board.

(3) Remove the High Voltage Board, be careful that High Voltage Terminal Springs are not dropped from the printer and lost.

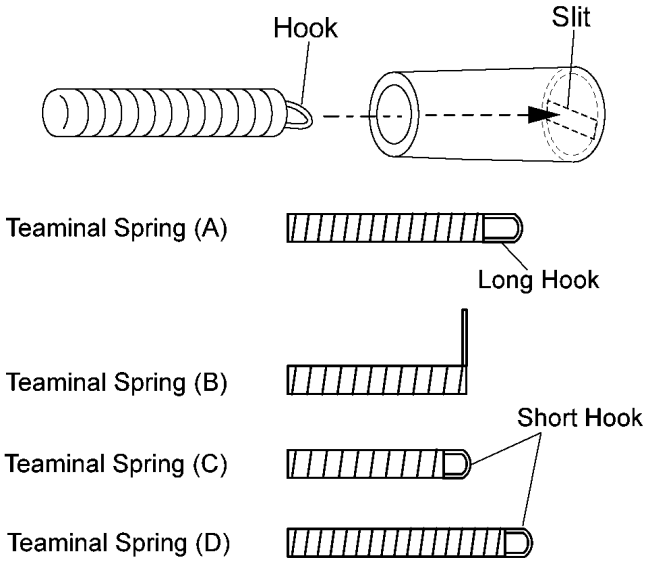
(4) Disconnect the Terminal Cable from the High Voltage Board.

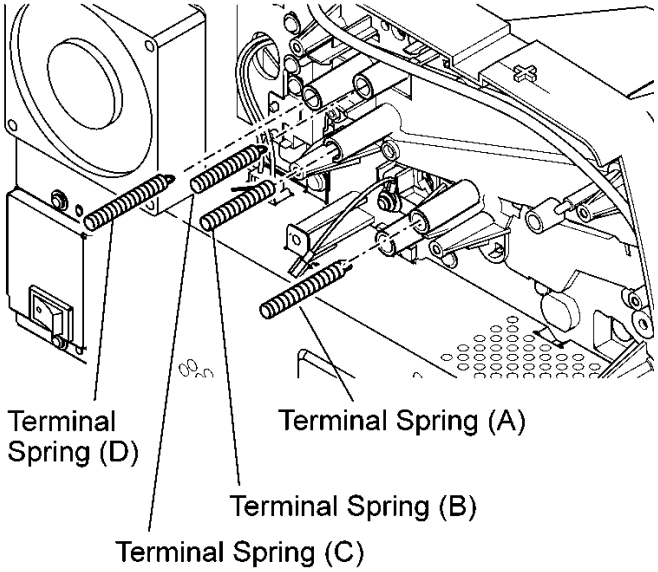


(5) Remove the 5 High Voltage Terminal Springs.

Caution :

When reinstalling the High Voltage Terminal Springs, all springs must be returned to the original position. And the hook of Spring (A), (C), (D) are set into the slits as shown in the following figure.





4.4.2. Power Supply Unit

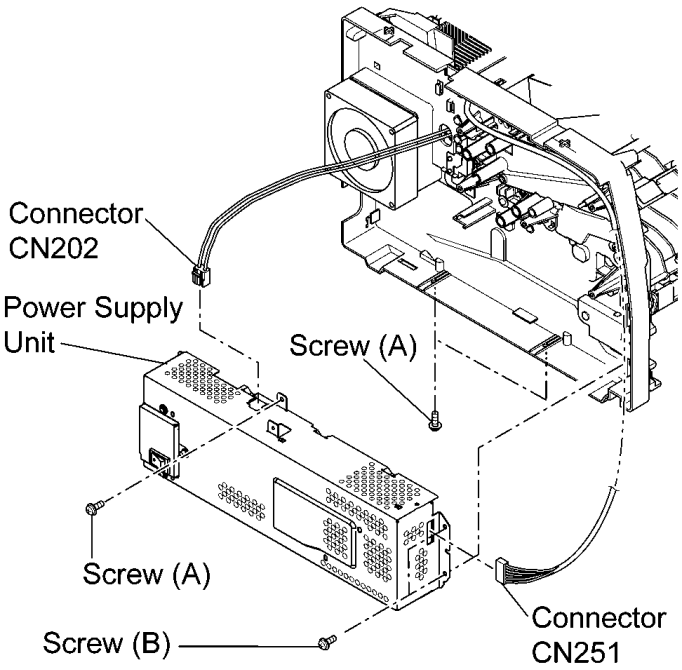
(1) Disconnect the 2 connectors.

(2) Remove the 3 screws (A) and 2 screws (B).

Caution :

The screw (A) differs from the screw (B). When reinstalling the screw, return it to the original position.

(3) Remove the Power Supply Unit.



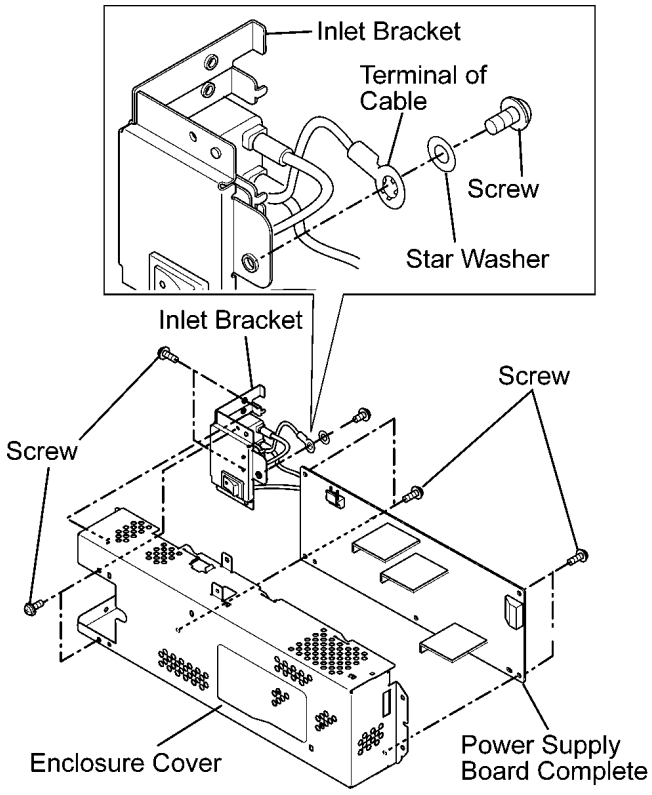
4.4.3. Power Supply Unit Disassembly

(1) Remove the Inlet Bracket with Power Lead Wire Assembly (4 screws).

Caution :

When reinstalling the terminal of cable, it must be attached tooth side as shown to fix it certainly.

(2) Remove the Enclosure Cover (4 screws with washer).



4.5. Engine Control and Indicator Boards

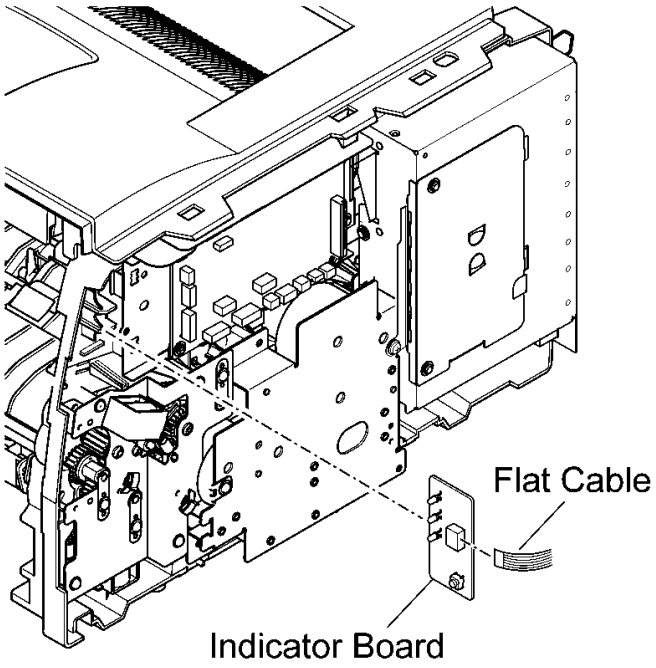
Before handling, remove the Right Cover (see Section 4.2).

4.5.1. Indicator Board

Before handling, remove the Right Cover (see Section 4.2).

(1) Remove the Indicator Board.

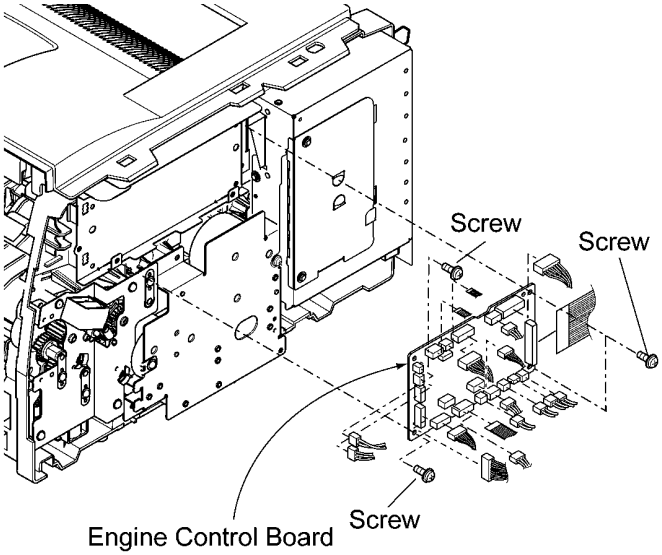
(2) Disconnect the Flat Cable from the Indicator Board.



4.5.2. Engine Control Board

(1) Disconnect the 14 connectors and 4 Flat Cables.

(2) Remove the Engine Control Board (4 screws).



4.6. Main Control and 2nd Feeder I/F Board

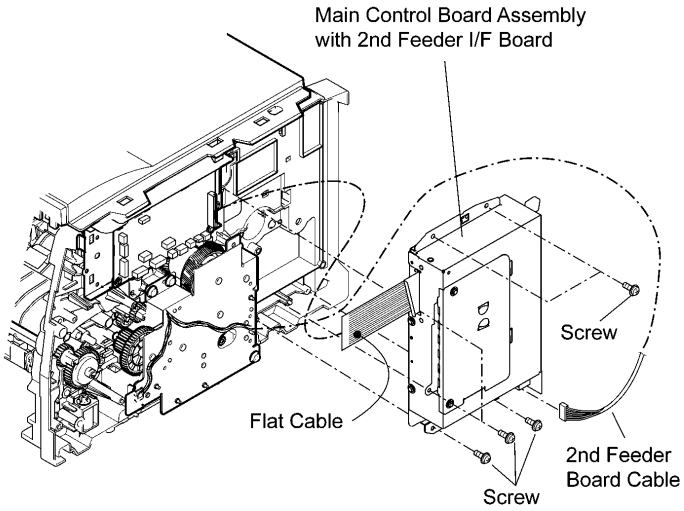
Before handling, remove the Right Cover (see Section 4.2)

4.6.1. Main Control Board Assembly

(1) Disconnect the flat cable from the engine control board.

(2) Disconnect the 2nd feeder board cable from the 2nd feeder I/F board.

(3) Remove the main control board assembly with 2nd feeder I/F board (6 screws).

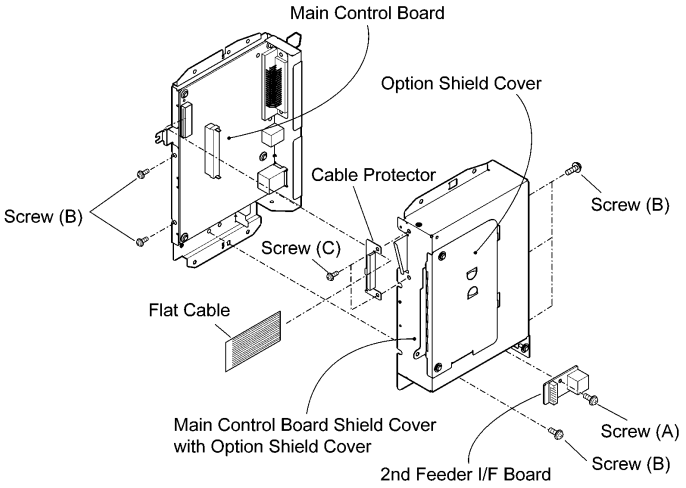


4.6.2. 2nd Feeder I/F Board and Main Control Board Disassembly

(1) Remove the screw (A) and 2nd feeder I/F board.

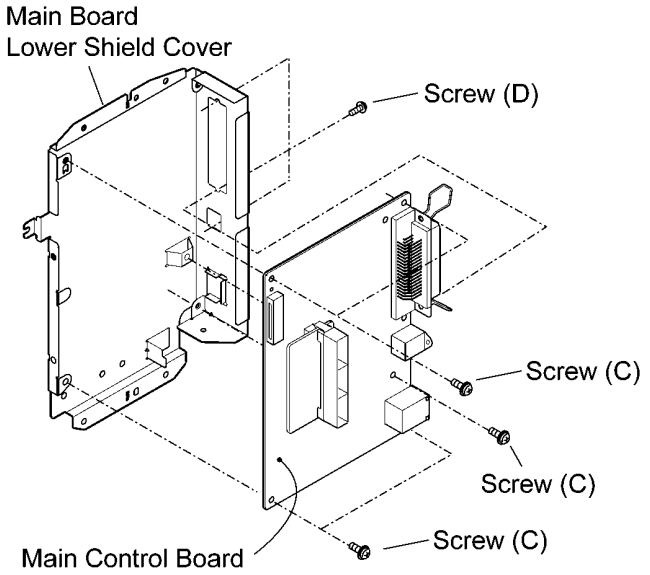
(2) Remove the 2 screws (C), cable protector and flat cable.

(3) Remove the 6 screws (B) and main control board shield cover with option shield cover.



(4) Remove the 5 screws (C) and 3 screws (D).

(5) Separate the main control board from the main board lower shield cover.



4.7. Toner Empty Sensor Board

Before handling, perform the following steps A ~ C.

A. Remove the Right Cover.

B. Remove the Main Control Board Assembly.

C. Remove the Engine Control Board.

(1) Remove 2 screws (A) and screw (B).

Caution :

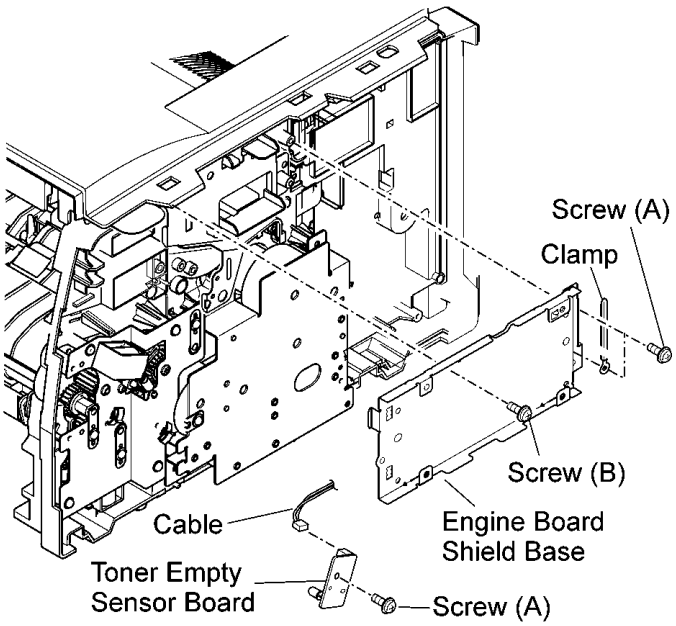
Screw (A) is different from screw (B). When reinstalling the screw (A), return it to the original position.

(2) Remove the Engine Board Shield Base.

(3) Remove the screw (A).

(4) Remove the Toner Empty Sensor Board.

(5) Disconnect the connector CN451.



4.8. Fan Motor

Before handling, perform the following steps A - B :

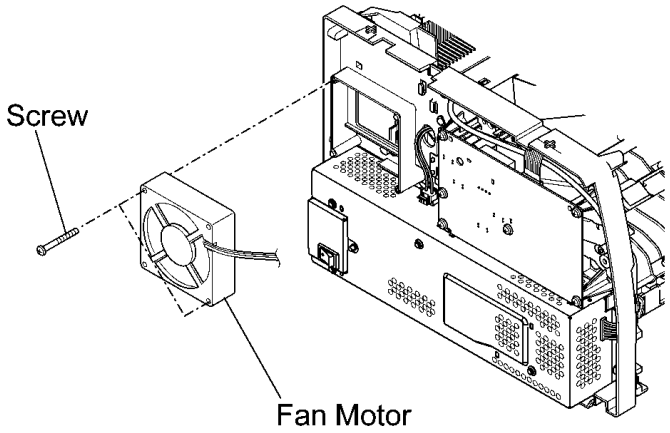
A. Remove the Right, Top and Left Covers (see Section 4.2).

B. Remove the Main Control Board, Engine Control Board and Engine Board Shield Base (see Sections 4.5 - 4.7).

(1) Remove the 2 screws.

(2) Remove the Fan Motor.

(3) Disconnect connector CN 018 on the Engine Control Board.



4.9. Fuser Drive Gear

Before handling, perform the following steps A - B :

A. Remove the Right Cover (see Section 4.2).

B. Remove the Main Control Board (see Section 4.6).

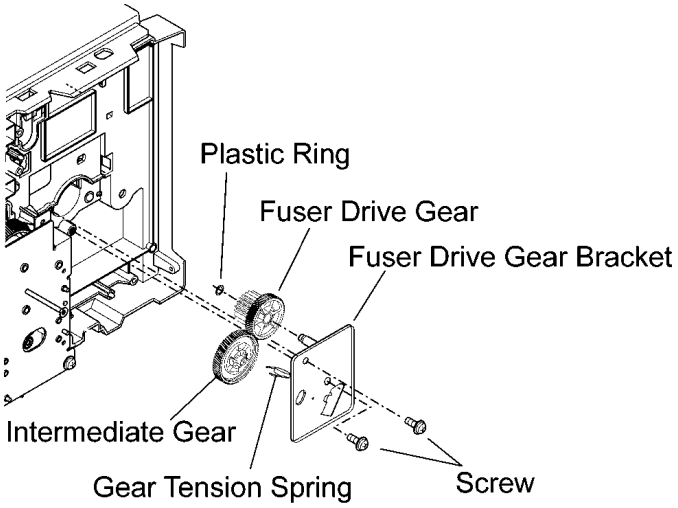
(1) Remove 2 screws.

(2) Remove the Fuser Drive Gear Bracket.

(3) If necessary, separate the Fuser Drive Gear, Intermediate Gear and Gear Tension Spring from the Fuser Drive Gear Bracket.

Caution:

Be careful not to lose the plastic ring behind the Fuser Drive Gear.



4.10. Gear Support Bracket, Relay Board (A), Motor, Drive Gear Unit and Paper Empty Sensor Board

Before handling, remove the Right Cover (see Section 4.2) :

4.10.1. Gear Support Bracket

(1) Disconnect the connector CN012 from the Engine Control Board.

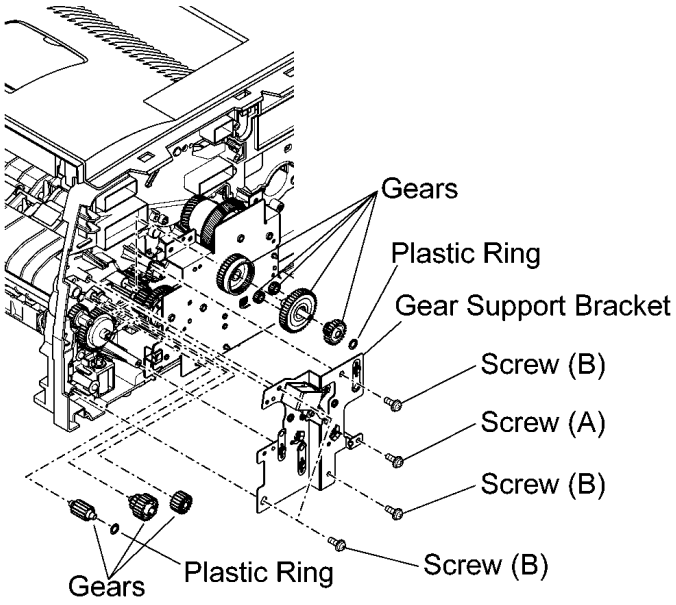
(2) Remove screw (A) and 4 screws (B).

Caution:

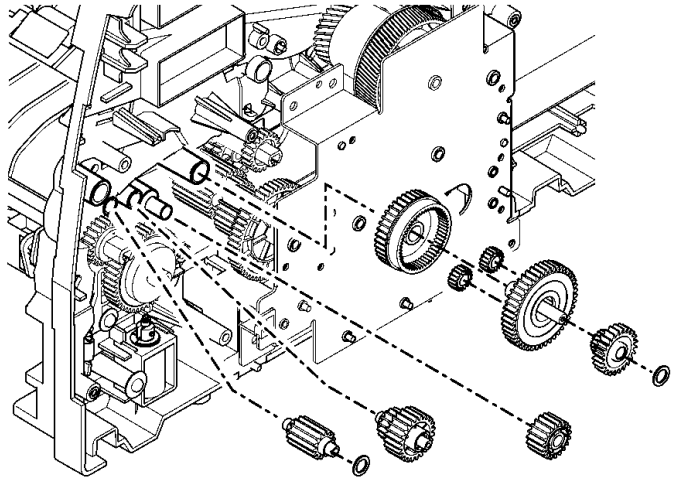
Screw (A) is different from screw (B). When reinstalling the screw, return it to the original position.

(3) Remove the Gear Support Bracket with solenoid.

(4) If necessary, remove the 8 gears from the chassis.



8 Gears Location



4.10.2. Drive Gear Unit and Motor

(1) Disconnect the connector CN017 from the Engine Control Board.

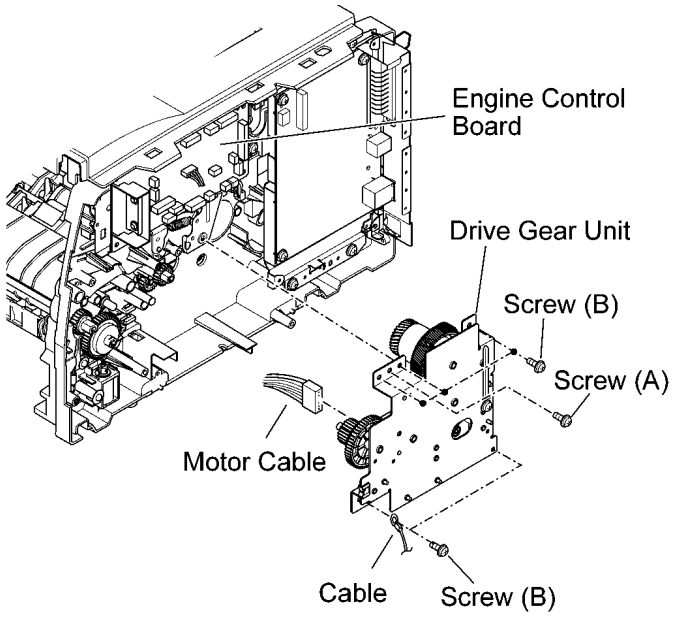
(2) Remove the screw (A) and 5 screws (B).

Caution:

The screw (A) differs from the screw (B). When reinstalling the screw, return it to the original position.

(3) Remove the Drive Gear Unit.

(4) Disconnect the Motor Cable.

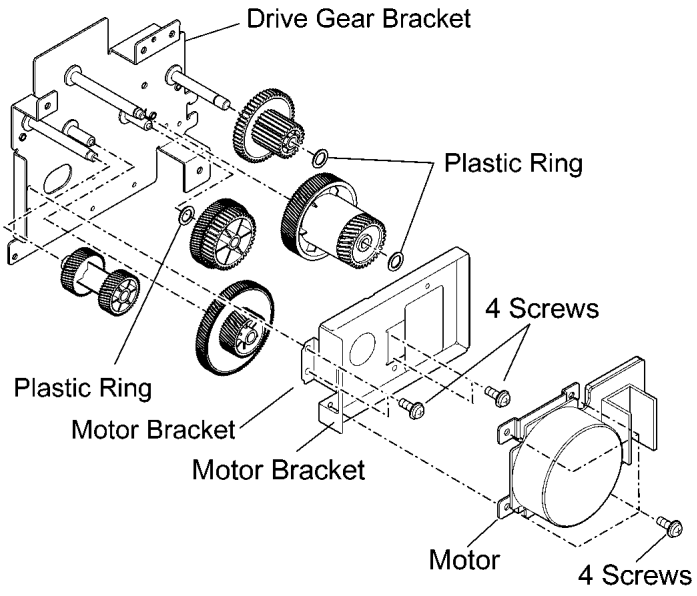


4.10.3. Drive Gear Unit Disassembly

(1) Remove the Motor (4 screws) from the Drive Gear Unit.

(2) Remove the 4 screws and Motor Bracket.

(3) All gears can be removed after removing the plastic ring.

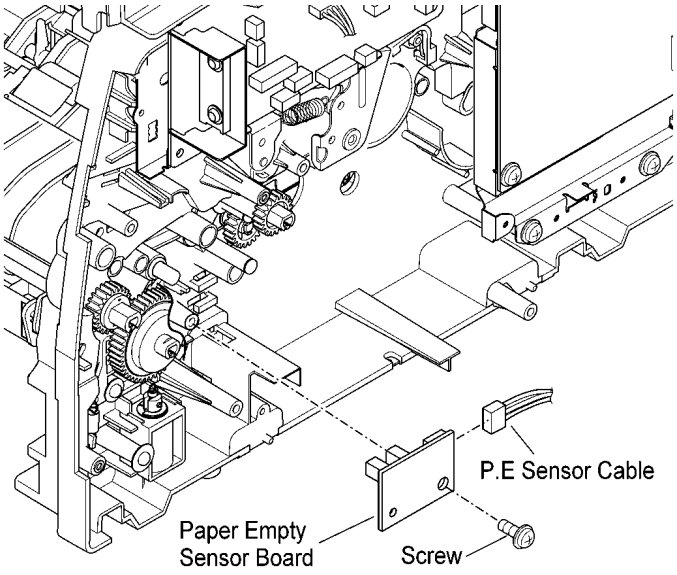


4.10.4. Paper Empty Sensor Board

(1) Remove the screw.

(2) Remove the Paper Empty Sensor Board.

(3) Disconnect the P.E. sensor cable from the paper empty sensor board.



4.11. Upper Exit Roller Holder

Before handling, perform the following:

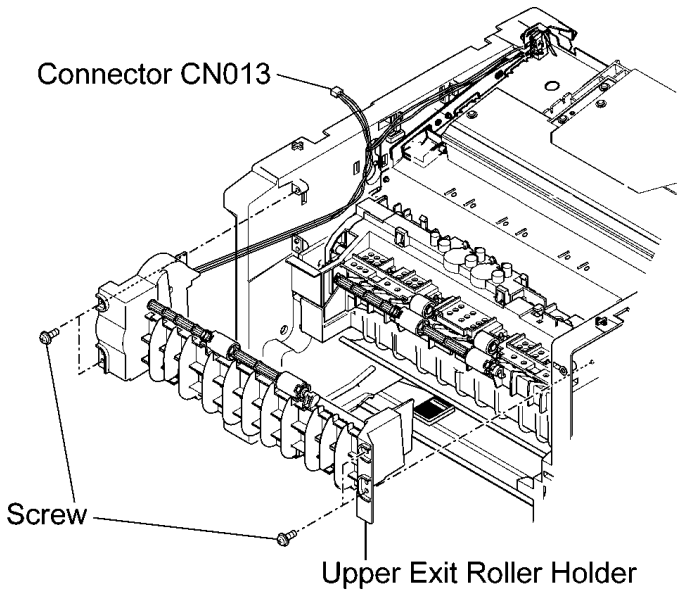
Remove the Right, Left and Top Covers (see Section 4.2).

4.11.1. Upper Exit Roller Holder

(1) Remove the 4 screws.

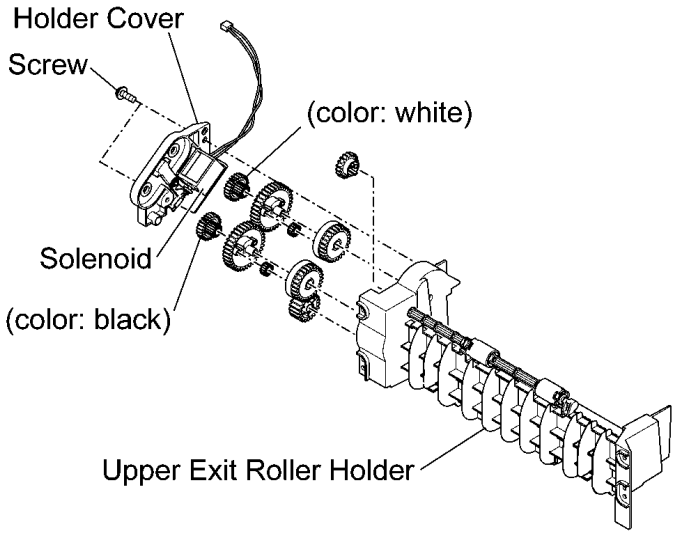
(2) Separate the Upper Exit Roller Holder.

(3) Disconnect connector CN013 on the Engine Control Board.



4.11.1.1. Upper Exit Roller Holder Disassembly

1. Remove the 2 screws.
2. Separate the Holder Cover with solenoid from the Upper Exit Roller Holder.
3. Remove the gears from the roller holder.



4.12. Fuser Unit

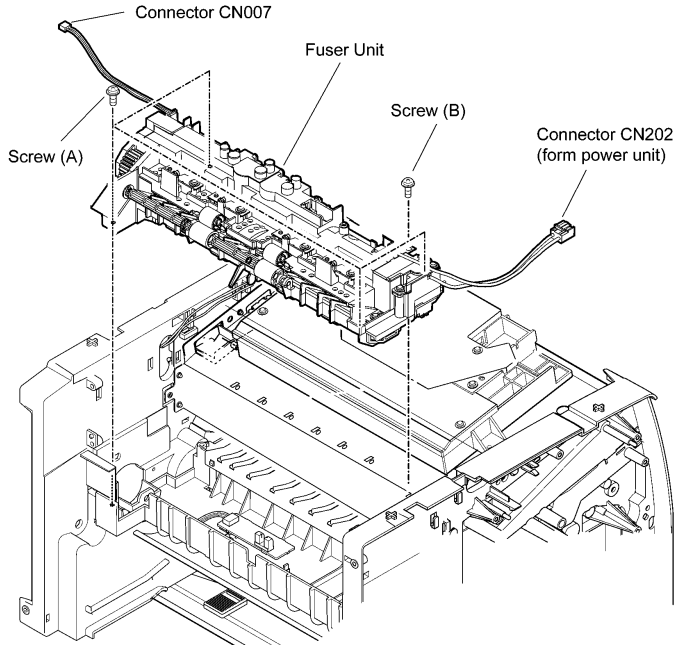
Before performing the following steps, remove the Upper Exit Roller Holder (see Section 4.11).

(1) Disconnect connector CN007 on the Engine Control Board.

(2) Disconnect the connector CN202 from the Power Supply Unit.

(3) Remove the 4 screws (A) and screw (B).

(4) Remove the Fuser Unit.

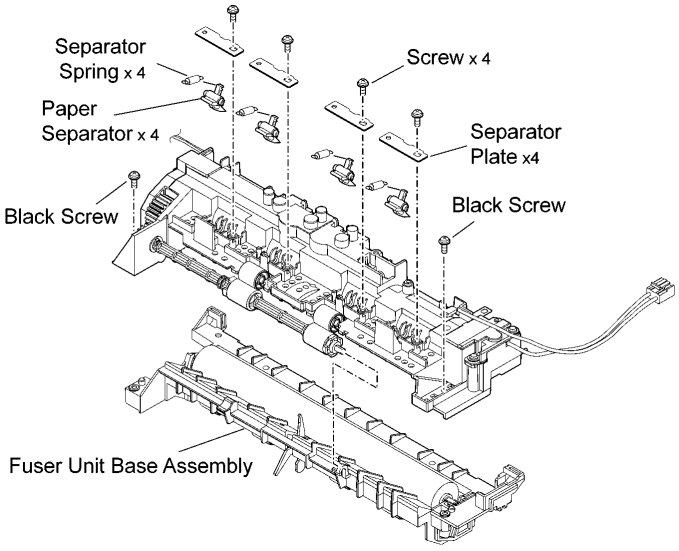


4.12.1. Fuser Unit Disassembly

(1) If necessary, remove the Paper Separators, Separator Springs and Separator Plates .

(2) Remove the 2 black screws.

(3) Separate the Heat Roller Holder from the Fuser Unit Base.

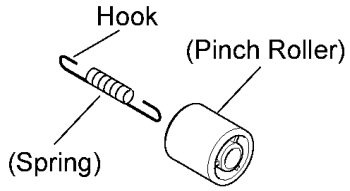


(1) Remove the Lower Exit Roller, Gear Ring, Lower Exit Roller Gear, 2 Pinch Rollers and 2 springs from the Heat Roller Holder.

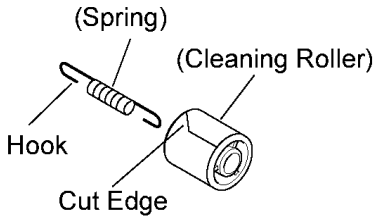
(2) If necessary, remove the Pressure Roller, 2 Bushings, 2 Springs and Cleaning Rollers from the Fuser Unit Base.

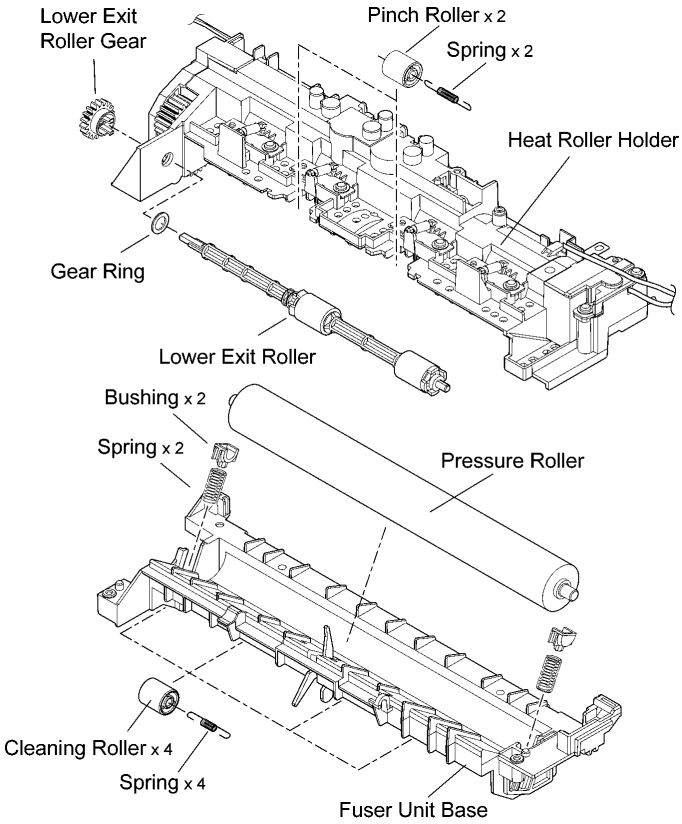
Caution:

- **When reinstalling the Pinch Roller and Spring, the spring hook is attached upward to prevent any damage to the printing media as shown following figure.**



- **When reinstalling the Cleaning Roller and Spring, the spring hook is attached downward and the cut edge of the cleaning roller is located as shown following figure to prevent any damage to the Pressure Roller.**

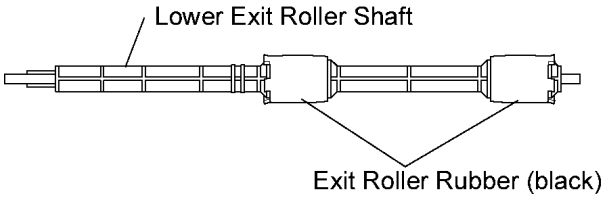




Note:

When reinstalling the exit roller rubber to the lower exit roller shaft, ensure it is installed as shown in figure-(A).

Figure - (A)



4.12.2. Heat Lamp

(1) Remove the Side Fuser Cover (2 screws).

(2) Remove the screw (A) and screw (B) from the ends of Heat Lamp Terminals.

(3) Slide out the Heat Lamp.

Caution:

- **Do not touch the heat lamp with your fingers.**

  a. It may be hot.

  b. The oil and dirt from your fingers will contaminate the surface, which will result in damaging the heat lamp when it is turned on.
- **When reinstalling the heat lamp, set the terminal of the heat lamp in the center of the Heat Roller to prevent from shorting, or shock, fire or other hazards may occur. {see figure (A)}**
- **When reinstalling the Heat Lamp, the terminal cable must be attached at the rivet side as shown to fix them certainly. {see figure (B)}**

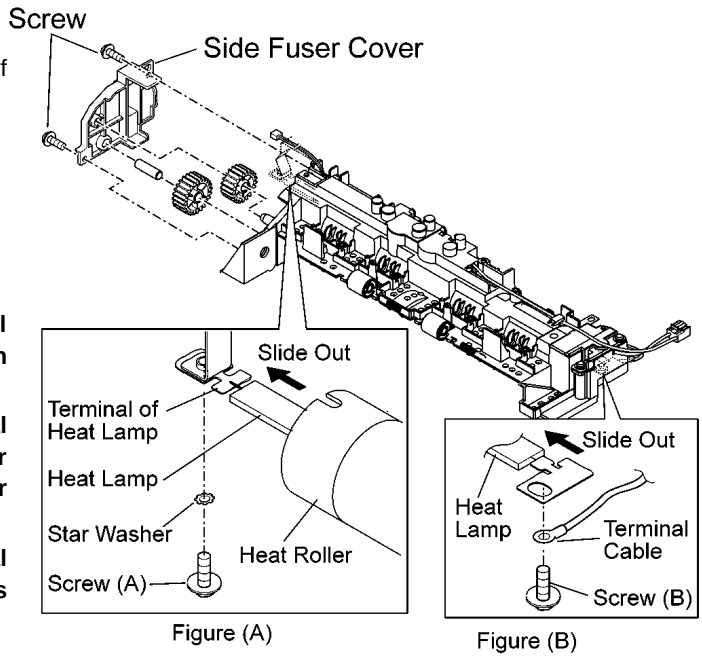


Figure (A)

Figure (B)

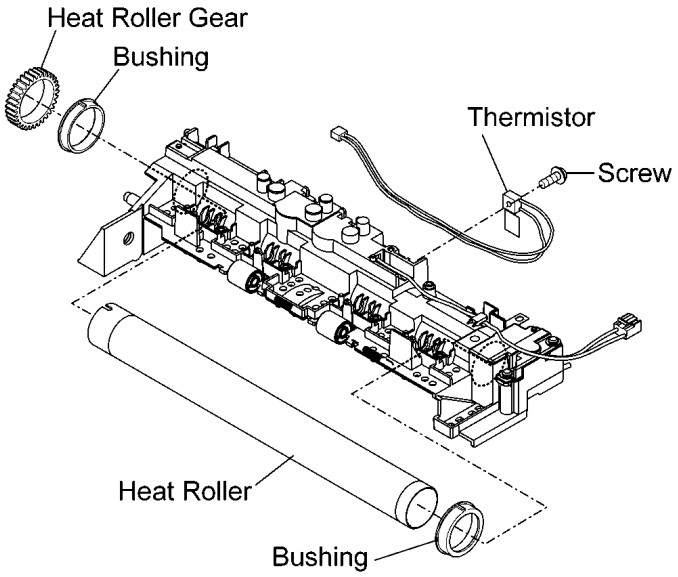
4.12.3. Heat Roller

(1) If the Paper Separators are installed, remove the Paper Separators (see section 4.12.1).

(2) Remove the screw and Thermistor.

(3) Remove the Heat Roller Gear and Bushing.

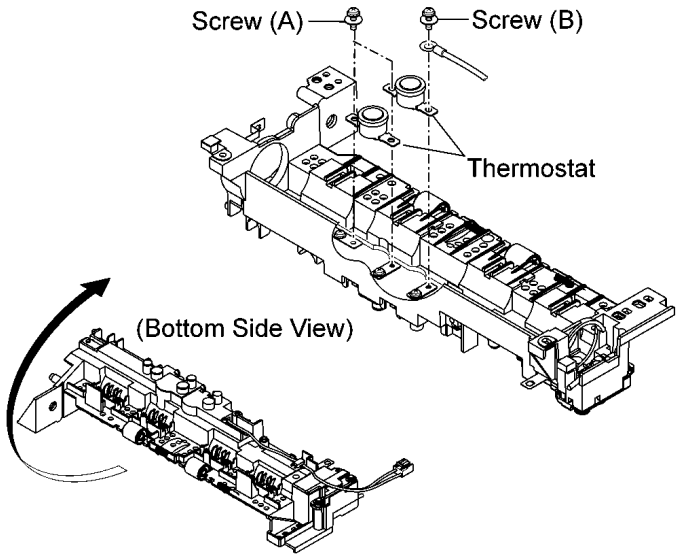
(4) Remove the Heat Roller with care to prevent scratching or damage to the surface of the Heat Roller.



4.12.4. Thermostat

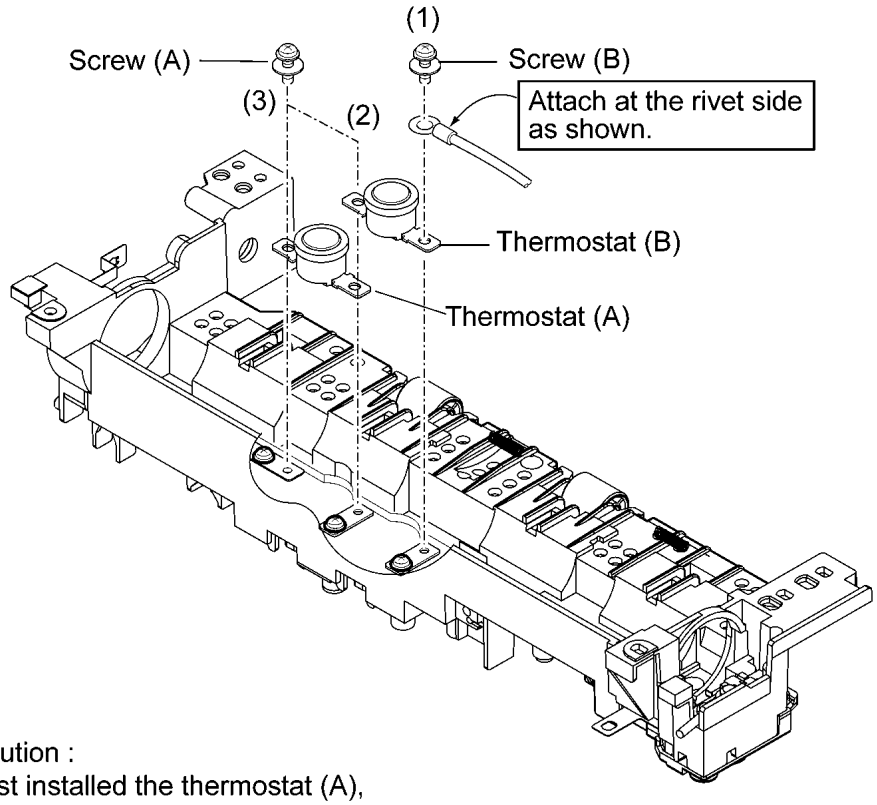
(1) Remove the 2 screw (A) and thermostat.

(2) Remove the screw (B) and thermostat.



Caution :

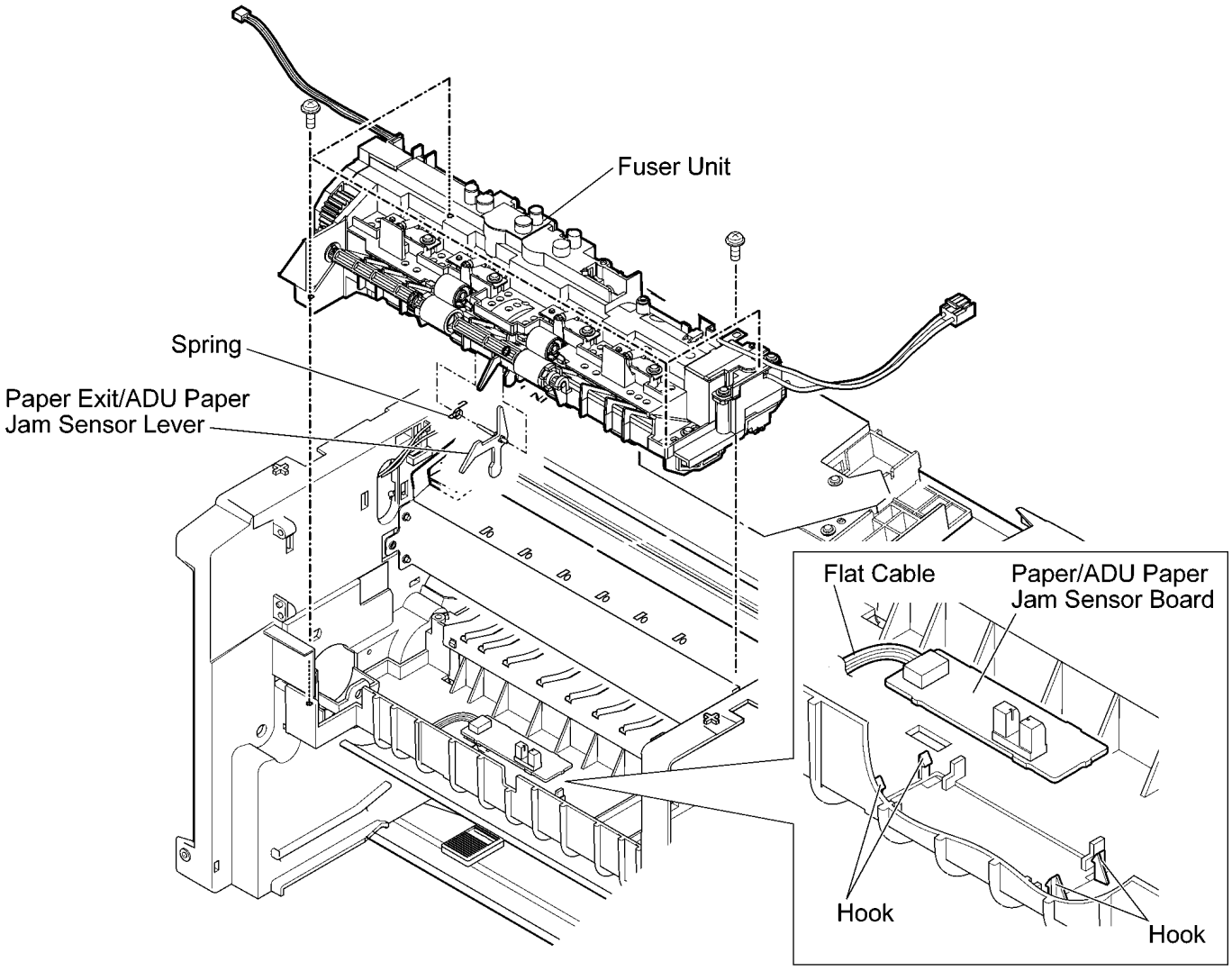
- **When reinstalling the thermostat, both end terminals must be positioned under the terminals of thermostat and lead wire as shown in the following figure, or thermostat cannot properly measure the surface temperature of the heat roller because the distance between the surface of heat roller and thermostat may change.**
- **When reinstalling the thermostats, the screws must be tightened in order (1), (2), (3) to position them correctly as shown in the following figure.**



Caution :
First installed the thermostat (A),
then the thermostat (B) must be installed, or the thermostats do not function properly.

4.12.5. Paper Exit/ADU Paper Jam Sensor Lever and Paper Exit/ADU Paper Jam Sensor Board

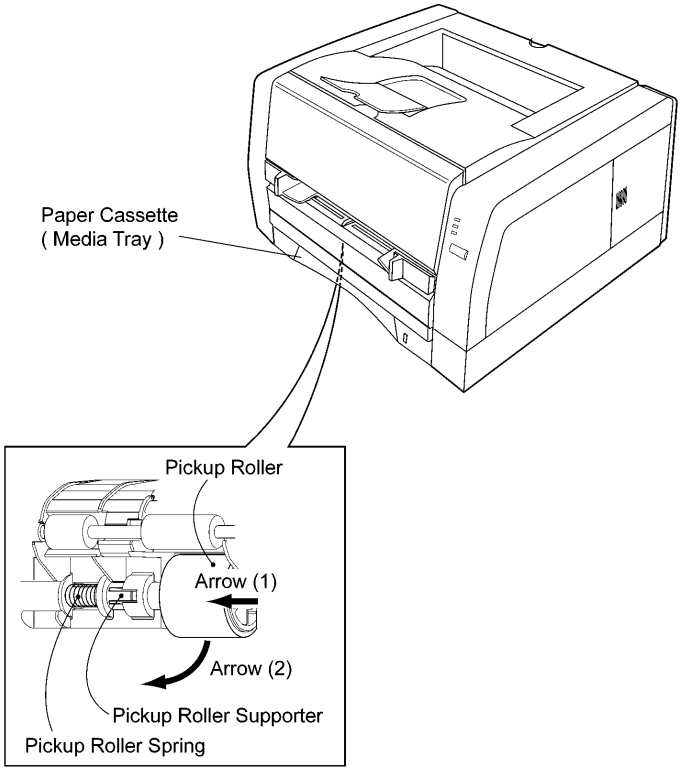
1. Remove the Fuser Unit (see section 4.12).
2. Remove the Paper Exit/ADU Paper Jam Sensor Lever with spring.
3. Disconnect the flat cable.
4. Remove the Paper/ADU Paper Jam Sensor Board by releasing the hooks.



4.13. Pickup Roller

(1) Remove the Paper Cassette (Media Tray).

(2) First, slide the Pickup Roller in the arrow (1) direction, then remove the Pickup Roller while turning the Pickup Roller as shown arrow (2).



4.14. Pickup Solenoid, Paper Feed Roller, Registration Roller and Transfer Roller

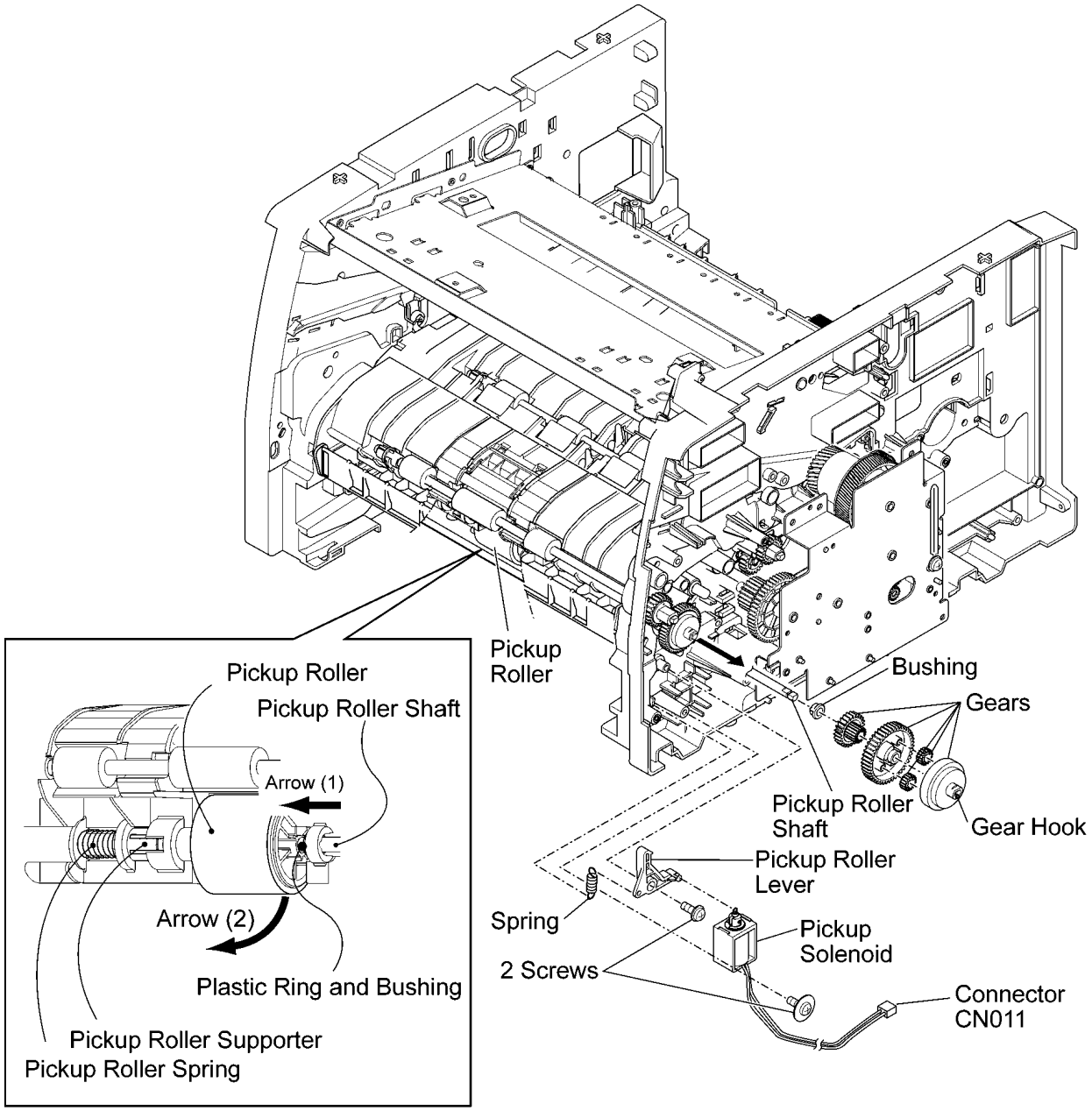
Before handling, perform the following steps A - B :

A. Remove the Gear Support Bracket and 8 gears (see Section 4.10.1).

B. Remove the Front Cover (see Section 4.1) and Right Cover (see Section 4.2)

4.14.1. Pickup Solenoid and Pickup Roller Shaft

1. Remove the Pickup Roller Gears and bushing by releasing the gear hook from the Pickup Roller Shaft.
2. Disconnect the connector CN011 from the Engine Control Board.
3. The Pickup Roller Lever and Pickup Solenoid and spring can be removed from the chassis frame by removing the 2 screws.
4. If necessary, remove the Pickup Roller Shaft by performing the following steps.
   1). Remove the Pickup Roller (see Section 4.3).
   2). Remove the plastic ring and bushing.
   3). Remove the Pickup Roller Shaft.



<Removing Pickup Roller>

1. Slide Pickup Roller in the arrow (1) direction,
2. Remove the Pickup Roller while turning the Pickup Roller in the arrow (2) direction

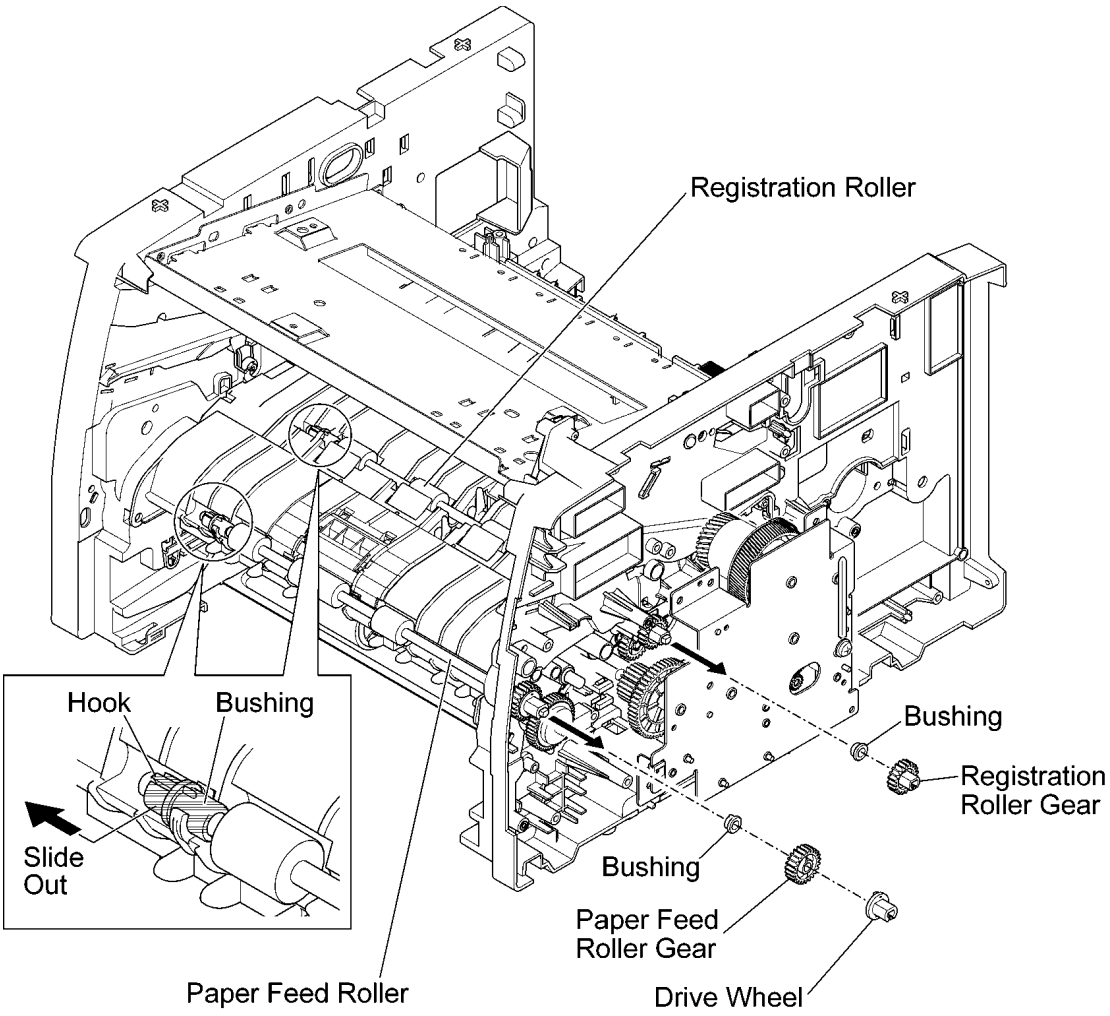
4.14.2. Paper Feed Roller / Registration Roller

4.14.2.1. Paper Feed Roller

1. Slide out the bushing from the Paper Feed Roller Shaft.
2. Remove the Paper Feed Roller Gear and Drive Wheel by releasing the hook from the Paper Feed Roller Shaft. Then, remove the Paper Feed Roller Shaft.

4.14.2.2. Registration Roller

1. Slide out the bushing from the Registration Roller Shaft.
2. Remove the Registration Roller Gear by releasing the gear hook from the Registration Roller Shaft. Then, remove the Registration Roller Shaft.



4.15. Transfer Roller Assembly

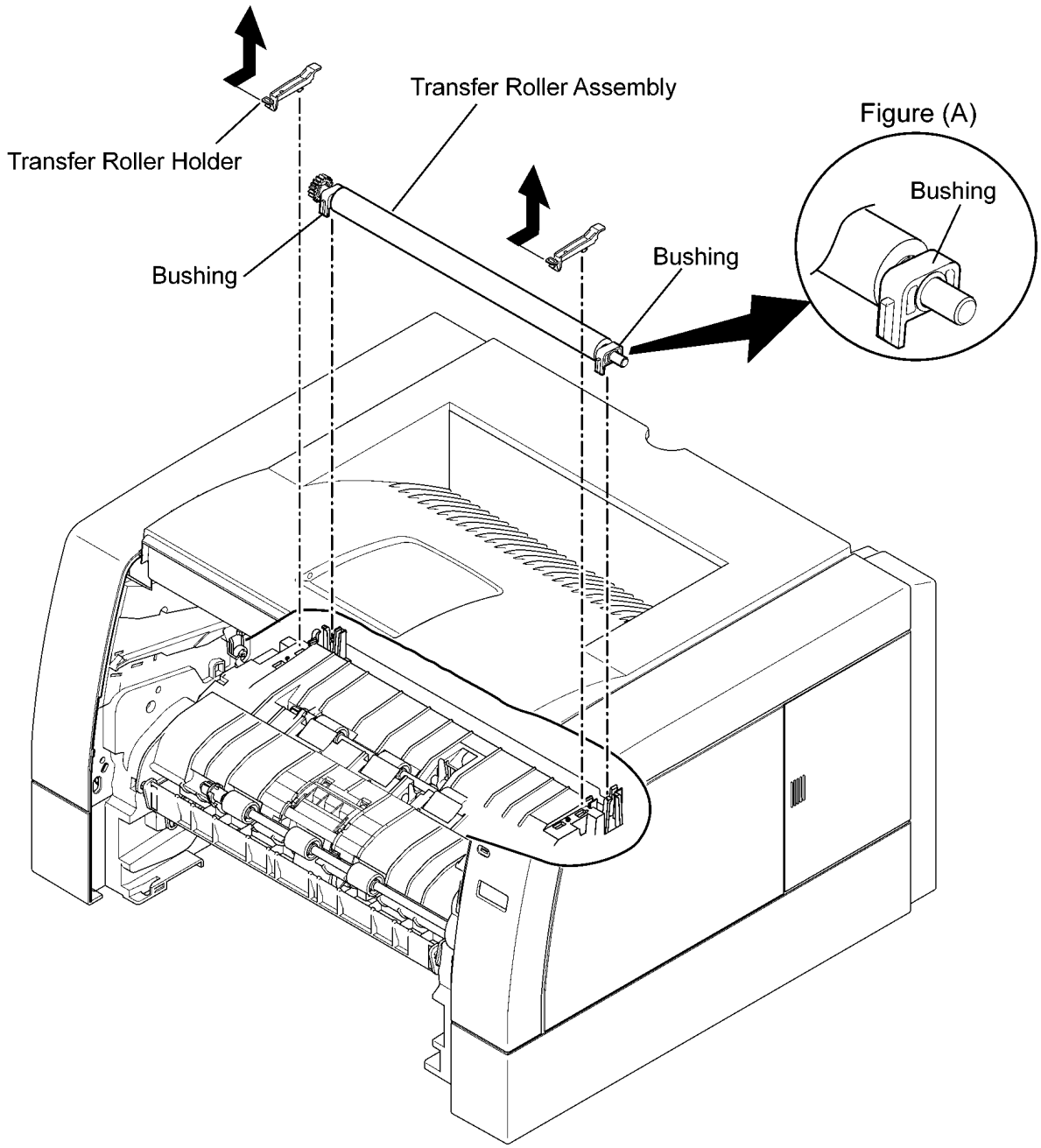
Before handling, perform the following step.

A. Remove the Front Cover (see Section 4.1).

1. Remove the 2 Transfer Roller Holders.
2. Remove the Transfer Roller Assembly by pulling up it.

Caution:

- **Do not touch the surface of Transfer Roller to prevent any print quality problems.**
- **When reinstalling the Transfer Roller Assembly, the bushings are set as shown in the figure (A).**



4.16. Auto Duplex Unit, ADU Registration Roller and ADU Pinch Roller

Before handling, perform the following steps A-B :

A. Remove the Paper Cassette and OPC Drum Unit.

B. Place the printer up side down.

4.16.1. Auto Duplex Unit (ADU)

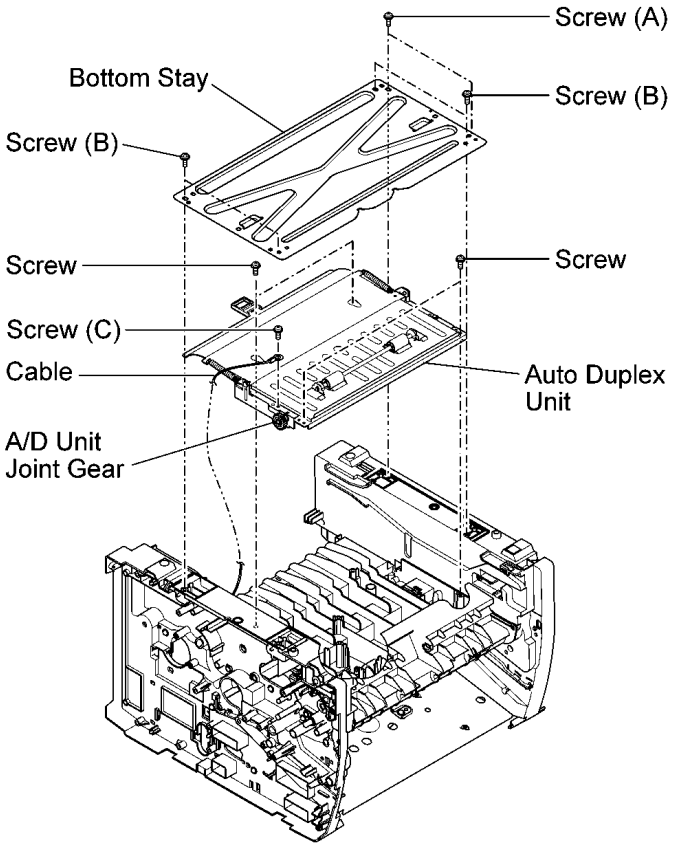
(1) Remove the 2 screws (A) and 4 screws (B).

Caution:

Screw (A) is different from screws (B). When reinstalling the screw (A), return it to the original position.

(2) Remove the Bottom Stay.

(3) Remove the Auto Duplex Unit with care to prevent damage to the A/D Unit Joint Gear {4 screws and screws (C)}.



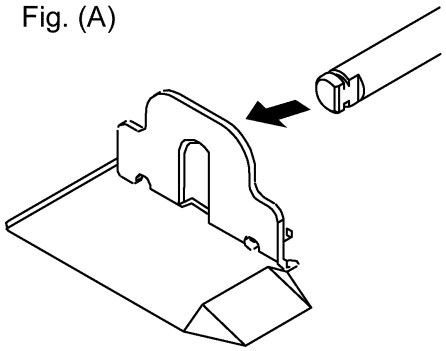
4.16.1.1. Auto Duplex Pinch and Registration Rollers

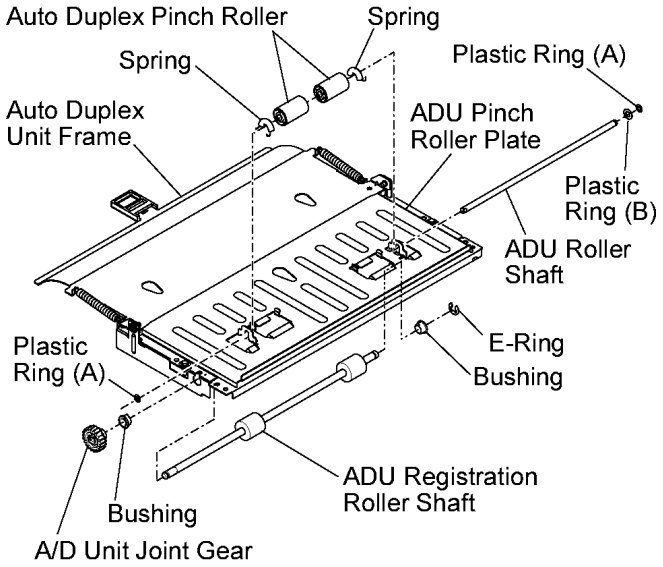
1. Remove the 2 plastic rings and 2 springs.
2. Remove the A/D Roller Shaft and 2 Auto Duplex Pinch Rollers.
3. Remove the E-ring.
4. Remove the A/D Unit Joint Gear from the ADU Registration Roller Shaft. The Registration Roller Shaft and 2 bushings can be remove from the Auto Duplex Unit frame.

Note:

When reinstalling the A/D Roller Shaft to ADU Pinch Roller Plate, ensure that it is installed as shown in Fig. (A).

Fig. (A)



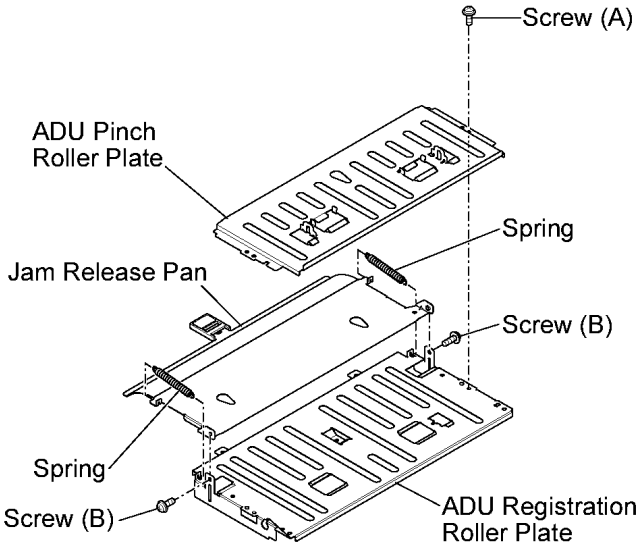


4.16.1.2. Auto Duplex Disassembly

1. The ADU Pinch Roller Plate can be separated from the Registration Roller Plate by removing the screw (A).
2. The ADU Jam Release Pan can be separated from the Registration Roller Plate by removing the 2 screws (B) and 2 springs.

   Caution:

   The screw (A) differs from the screw (B). When reinstalling the screw, return it to the original position.



4.17. Registration Sensor Lever, Paper Top Detection Sensor Lever and Registration & Paper Top Detection Sensor Board

Before handling, perform the following steps A - D :

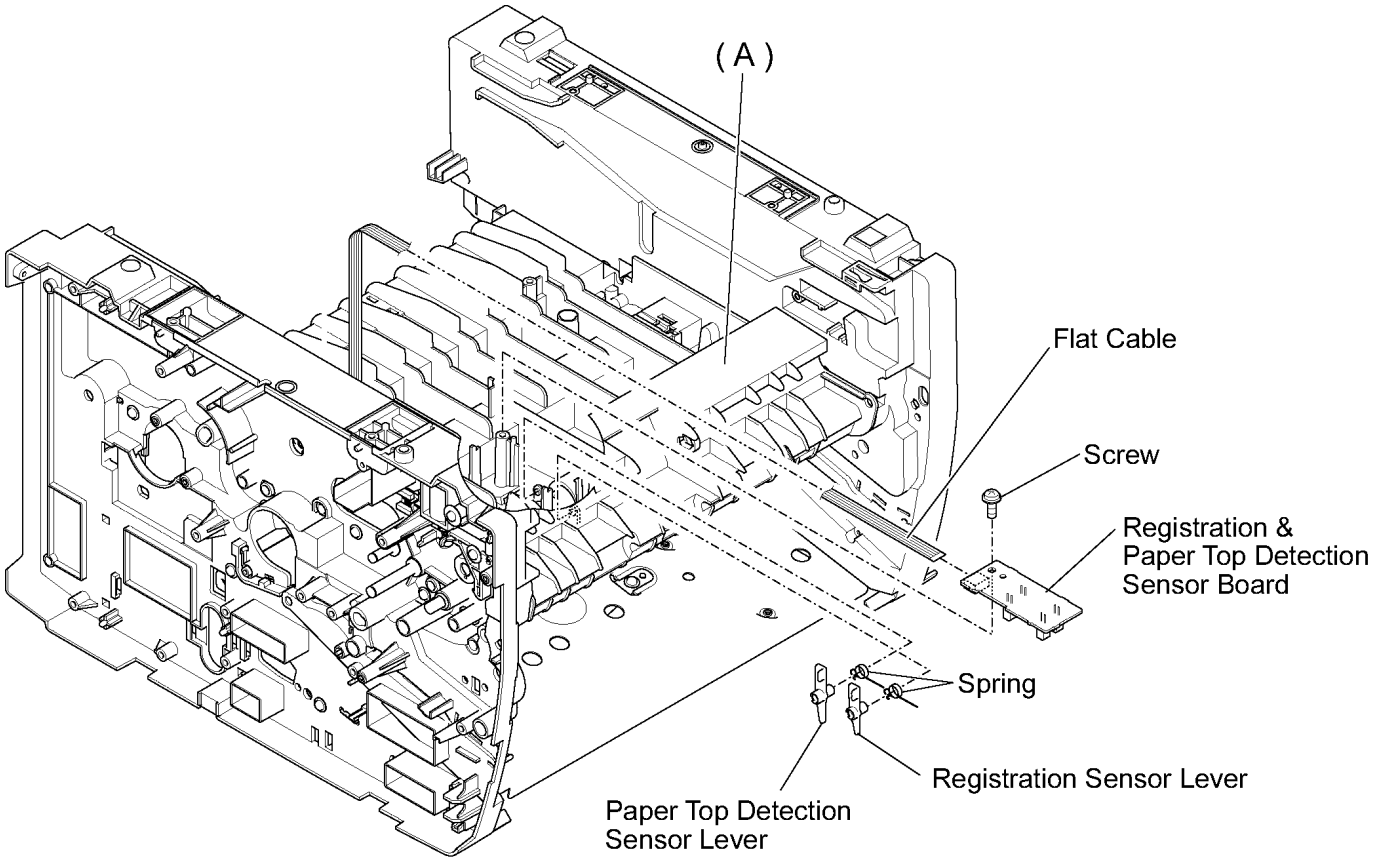
A. Remove the Paper Cassette and OPC Drum Unit.

B. Remove the Left and Right Covers (see Sections 4.2).

C. Place the printer upside down.

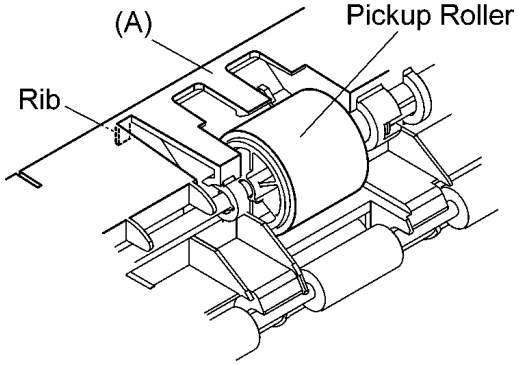
D. Remove the Auto Duplex Unit (see Section 4.16).

1. Remove the screw, and disconnect the flat cable.
2. Remove the Registration & Paper Top Detection Sensor Board.
3. Remove the Registration Sensor Lever by releasing the lever axis from the projection.
4. Remove the Paper Top Detection Sensor Lever by releasing the lever axis from the chassis.



Caution :

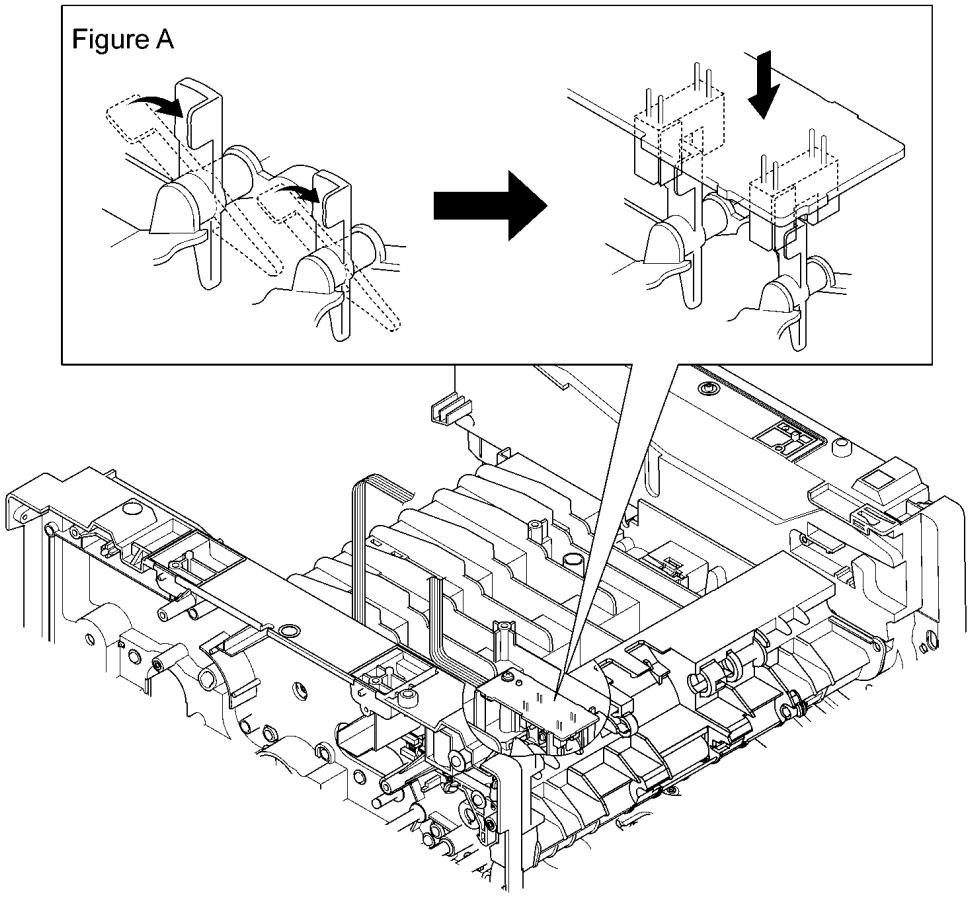
When removing or installing the Registration Sensor Lever, Paper Top Detection Sensor Lever and Registration & Paper Top Detection Sensor Board, take care to prevent damage to the rib of parts (A).



Caution :

When reinstalling the Registration Sensor Lever, Paper Top Detection Sensor Lever and Registration & Paper Top

Detection Sensor Board, the Registration Sensor and Paper Top Detection Sensor Levers must be positioned as shown in the following figure (A).



4.18. Paper Empty Sensor Lever

Before handling, perform the following steps A - D :

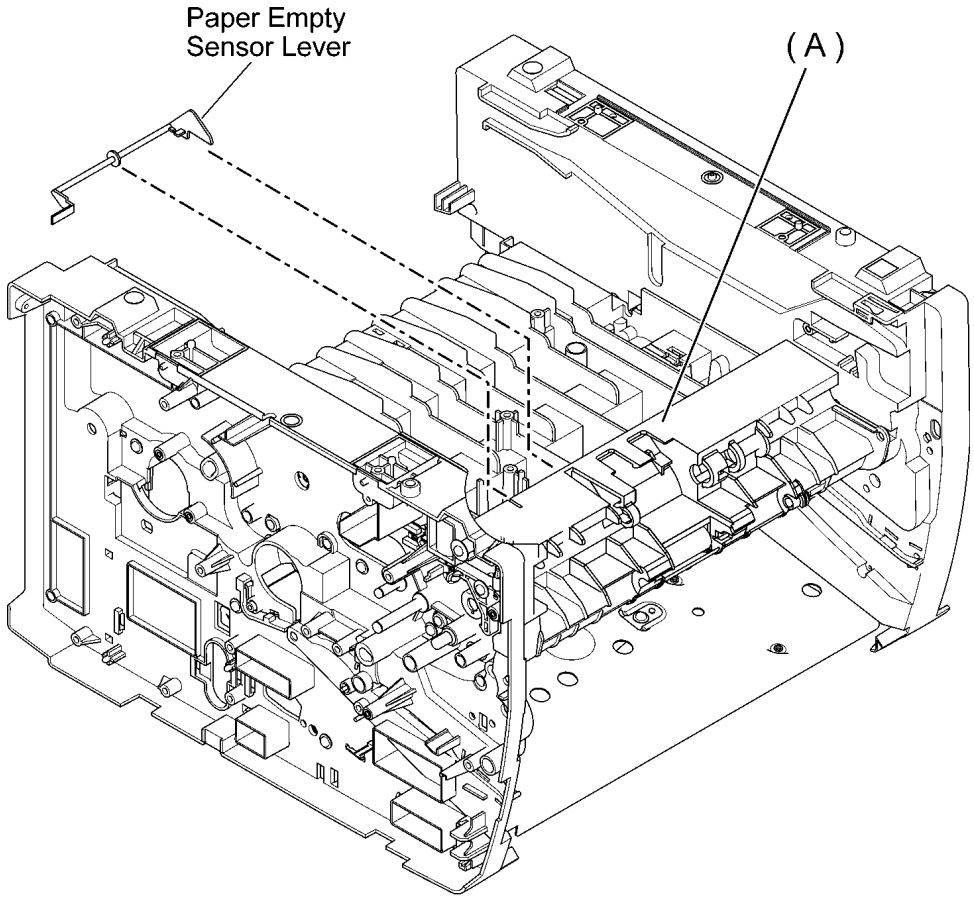
A. Remove the Paper Cassette and OPC Drum Unit.

B. Remove the Left and Right Covers (see Sections 4.2).

C. Place the printer upside down.

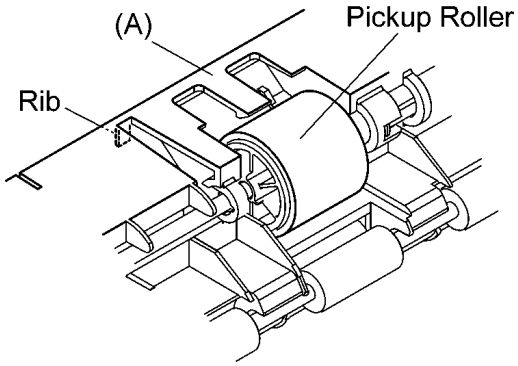
D. Remove the Auto Duplex Unit (see Section 4.16).

1. Remove the Paper Empty Sensor Lever.



Caution :

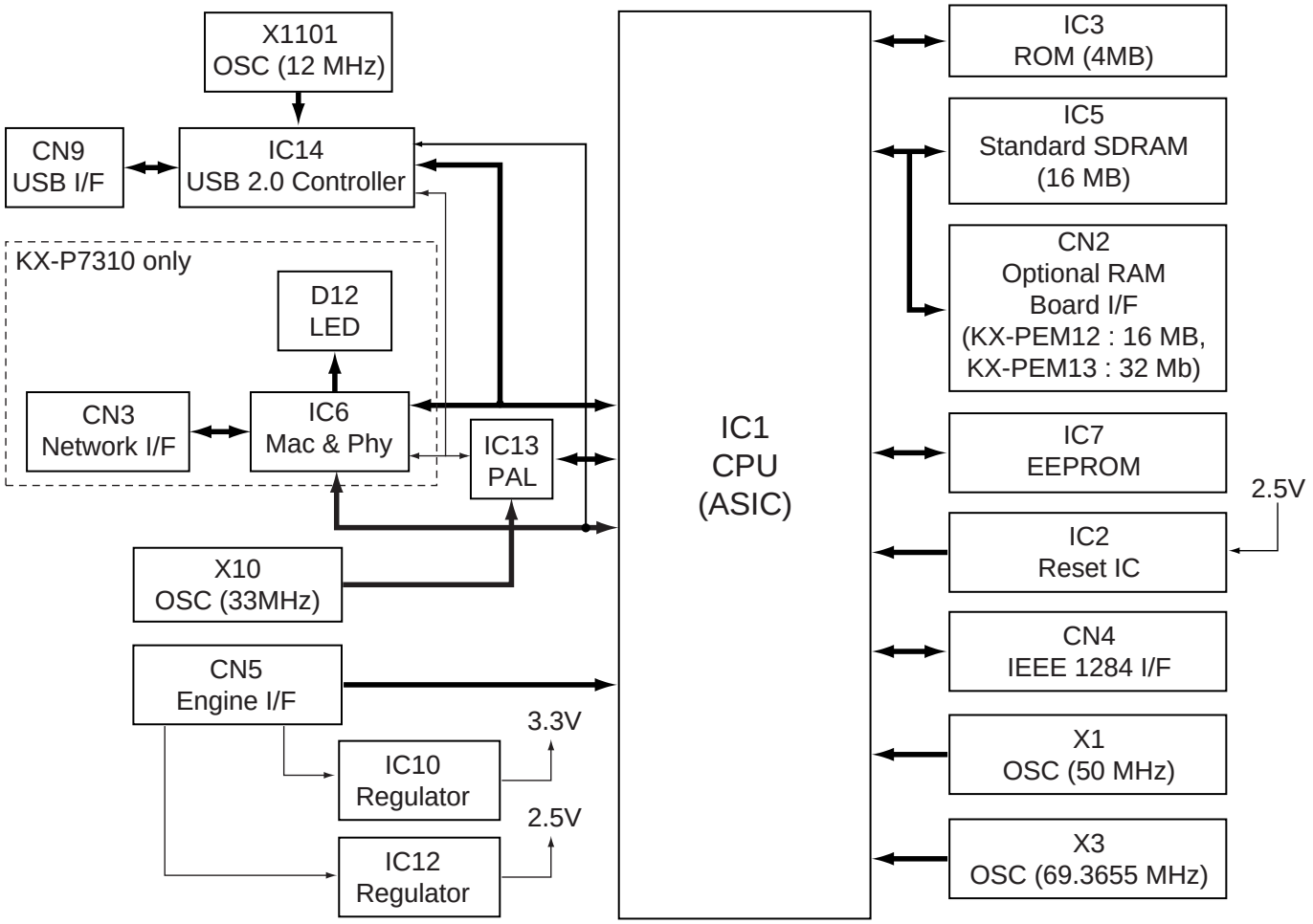
When reinstalling the Paper Empty Sensor Lever, take care to prevent damage to the rib of parts (A).



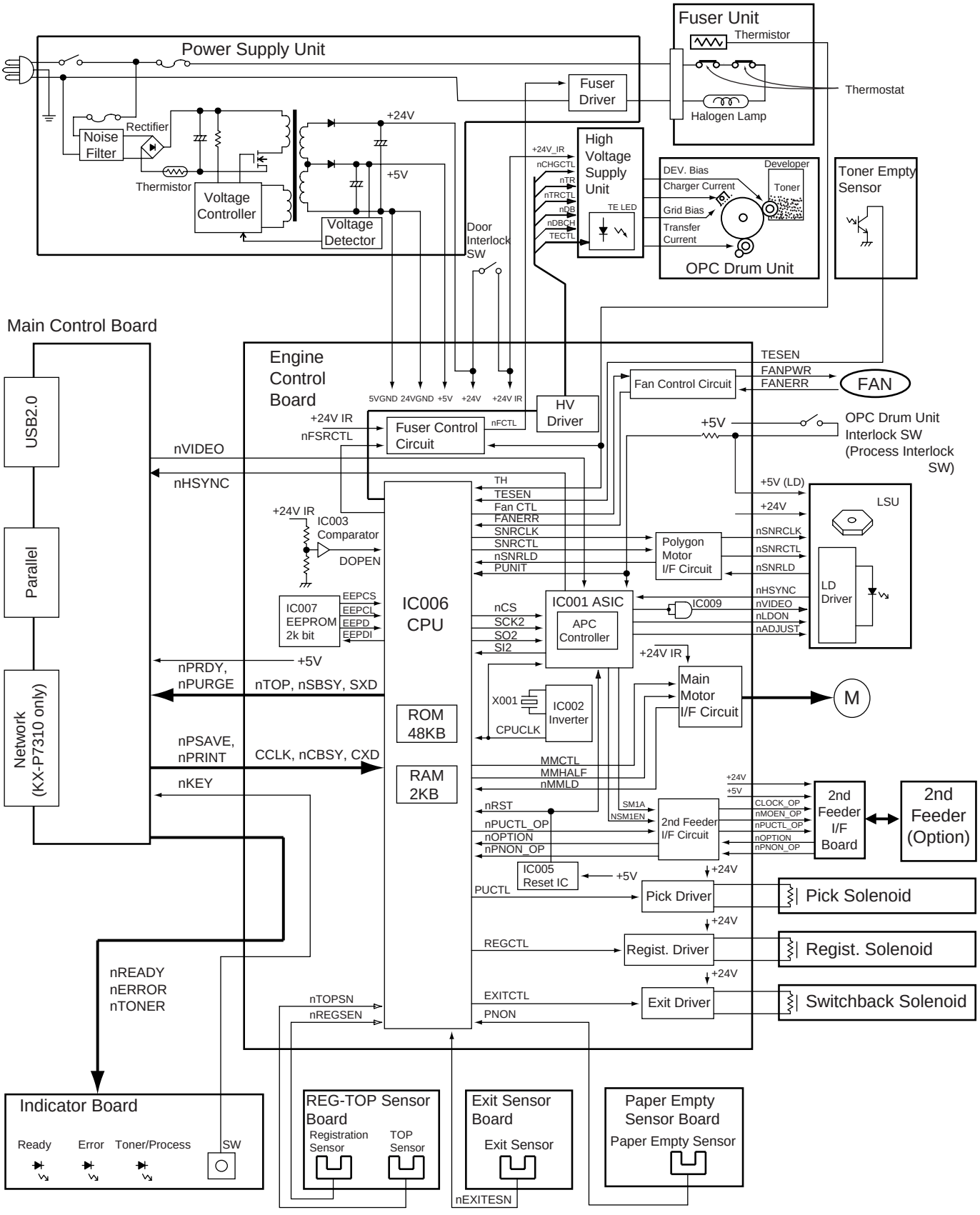
5 Electronic Circuit Description and Diagrams

5.1. Block Diagram

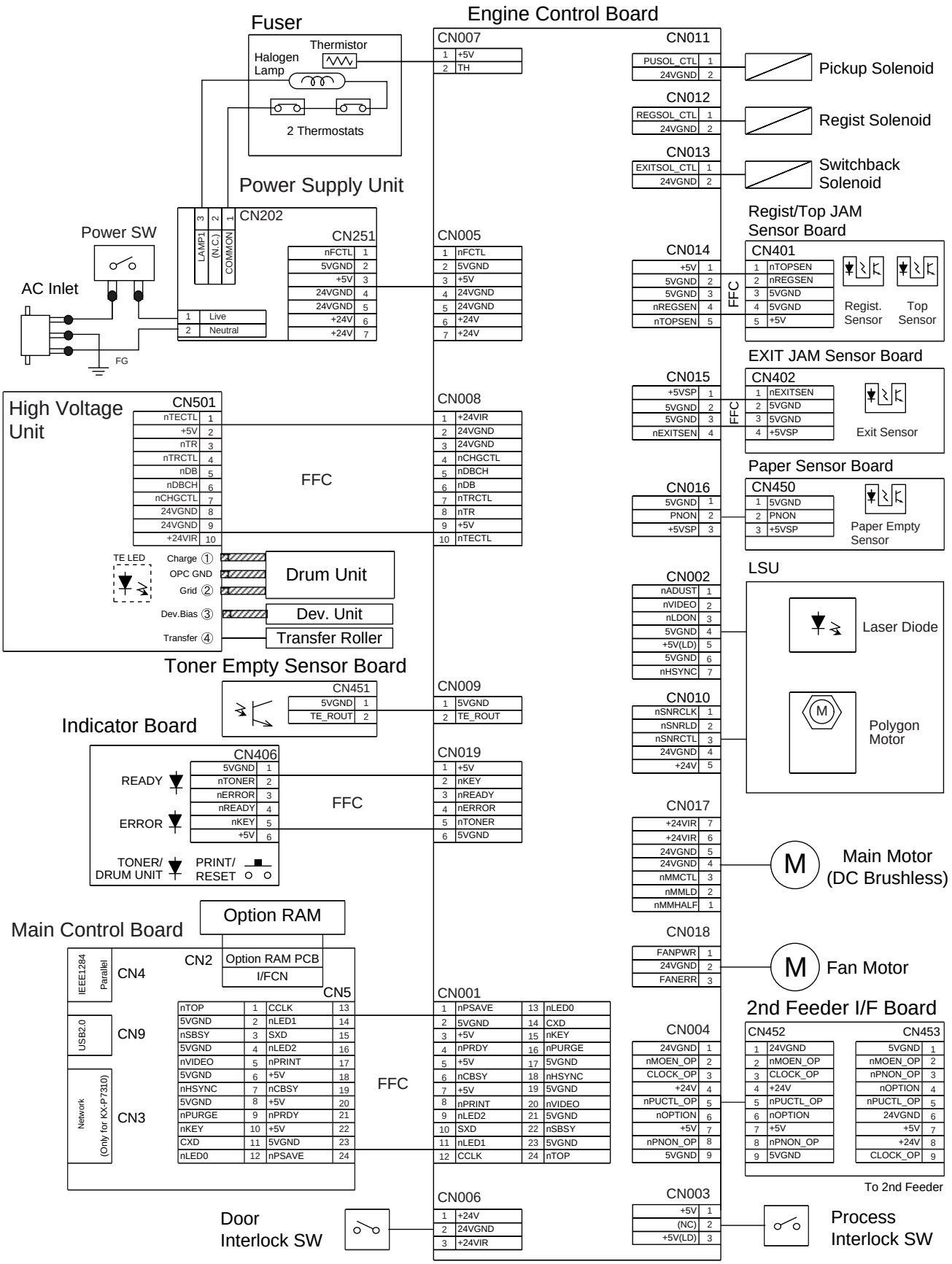
5.1.1. Main Control Board Block Diagram



5.1.2. Engine Control Block Diagram

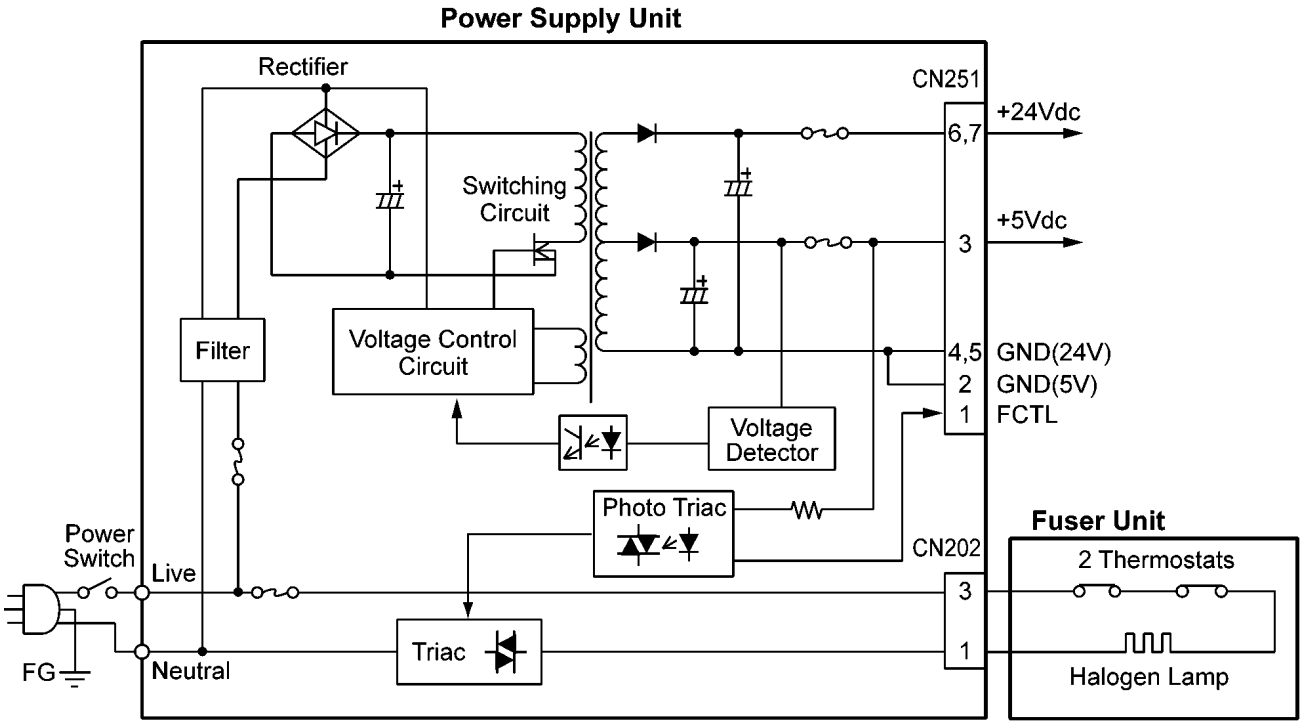


5.2. Connection Diagram



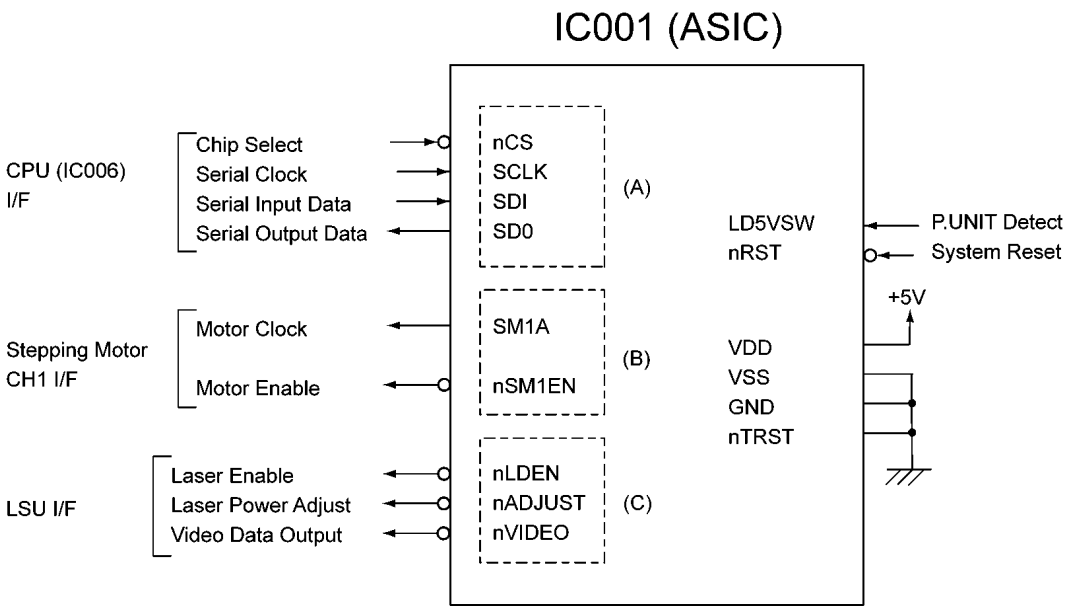
5.3. Power Supply

The power supply circuit generates +5Vdc and +24Vdc. It also supplies AC Voltage to the halogen heat lamp in the fuser unit.



5.4. Engine Control Board

5.4.1. IC1 (ASIC)



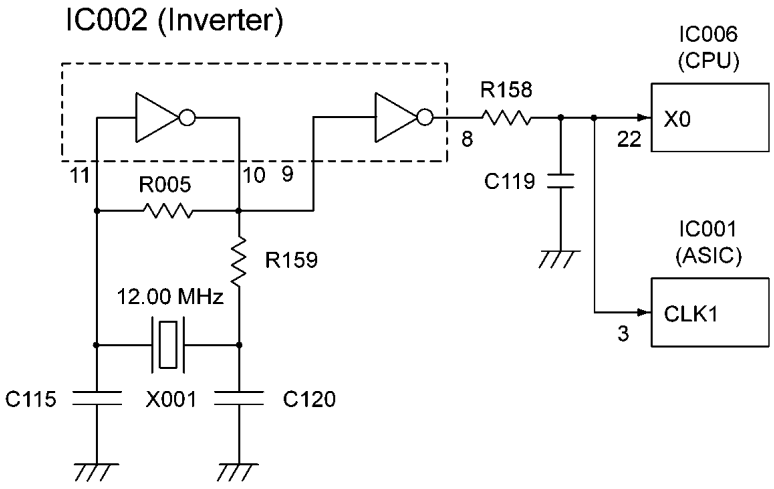
(A) This block is the serial communication interface with the Engine CPU (IC004).

(B) This block is the Stepping Motor Controller (CH1) to control the 2nd Feeder motor.

(C) This block is the LSU Controller, and it consists of laser enable, power adjust and video data.

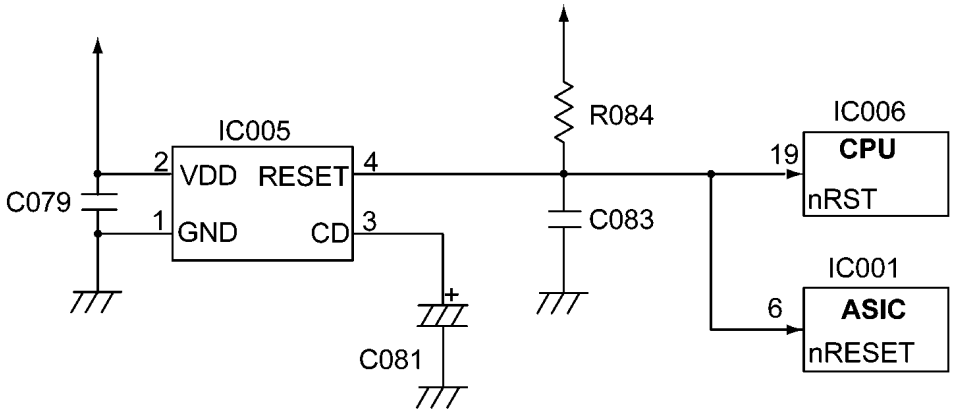
5.4.2. Clock Circuit

The system clock (12.00MHz) is generated by IC002 and X001, and it is supplied to the CPU (IC006) and IC001.

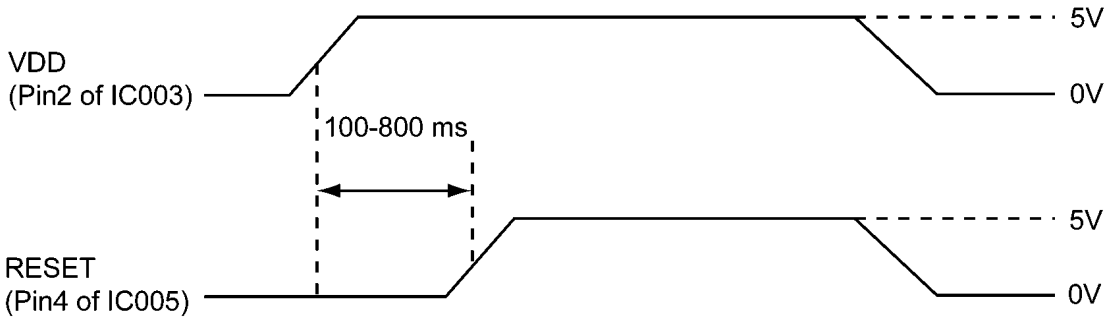


5.4.3. Reset Circuit

Reset signal is generated when the power is turned on. The reset circuit initializes the CPU (IC006), the ASIC (IC001). Approximately 100~800 msec after turning on the power, pin4 of IC005 goes high.



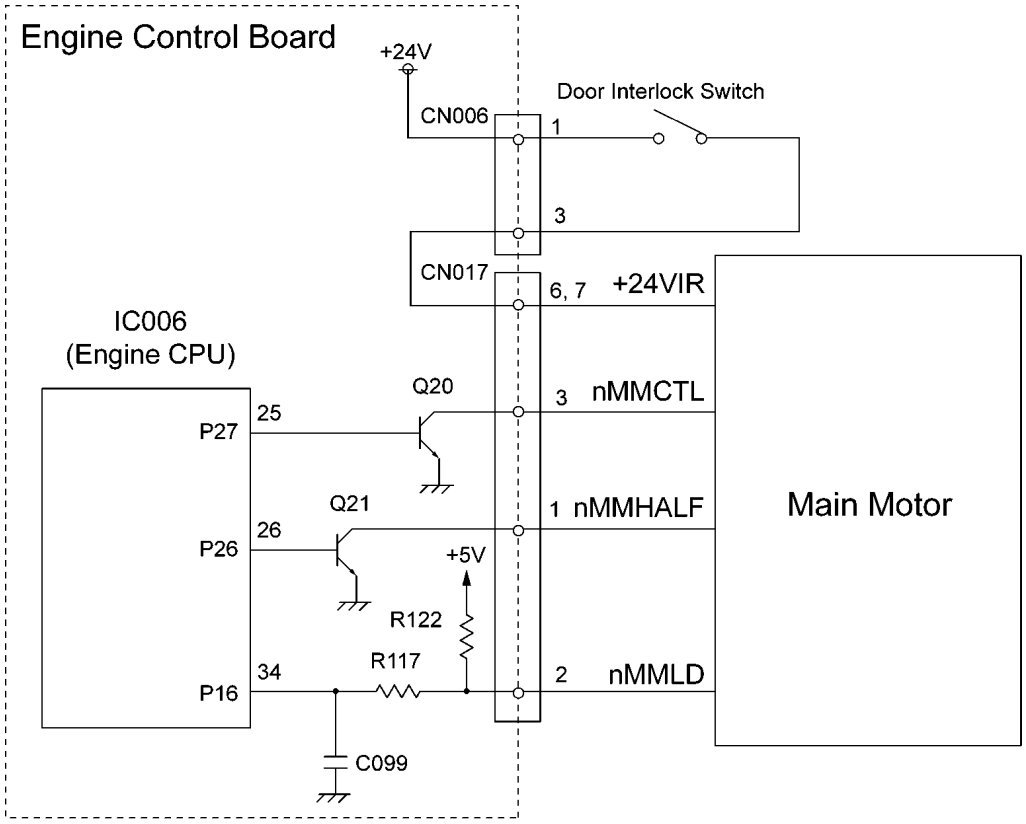
Timing Chart



5.4.4. Main Motor Drive I/F Circuit

The main motor control signals are as follows:

Signal Name	Description
nMMCTL	This is a control signal for main motor.
nMMLD	The main motor rotates 1908.35 or 954.18 rpm. This signal is low level while the motor rotates 1908.35 (or 954.18) rpm ± 6.25%.
nMMHALF	For selecting the rotation speed of main motor. H: 1908.35 rpm, L: 954.18 rpm

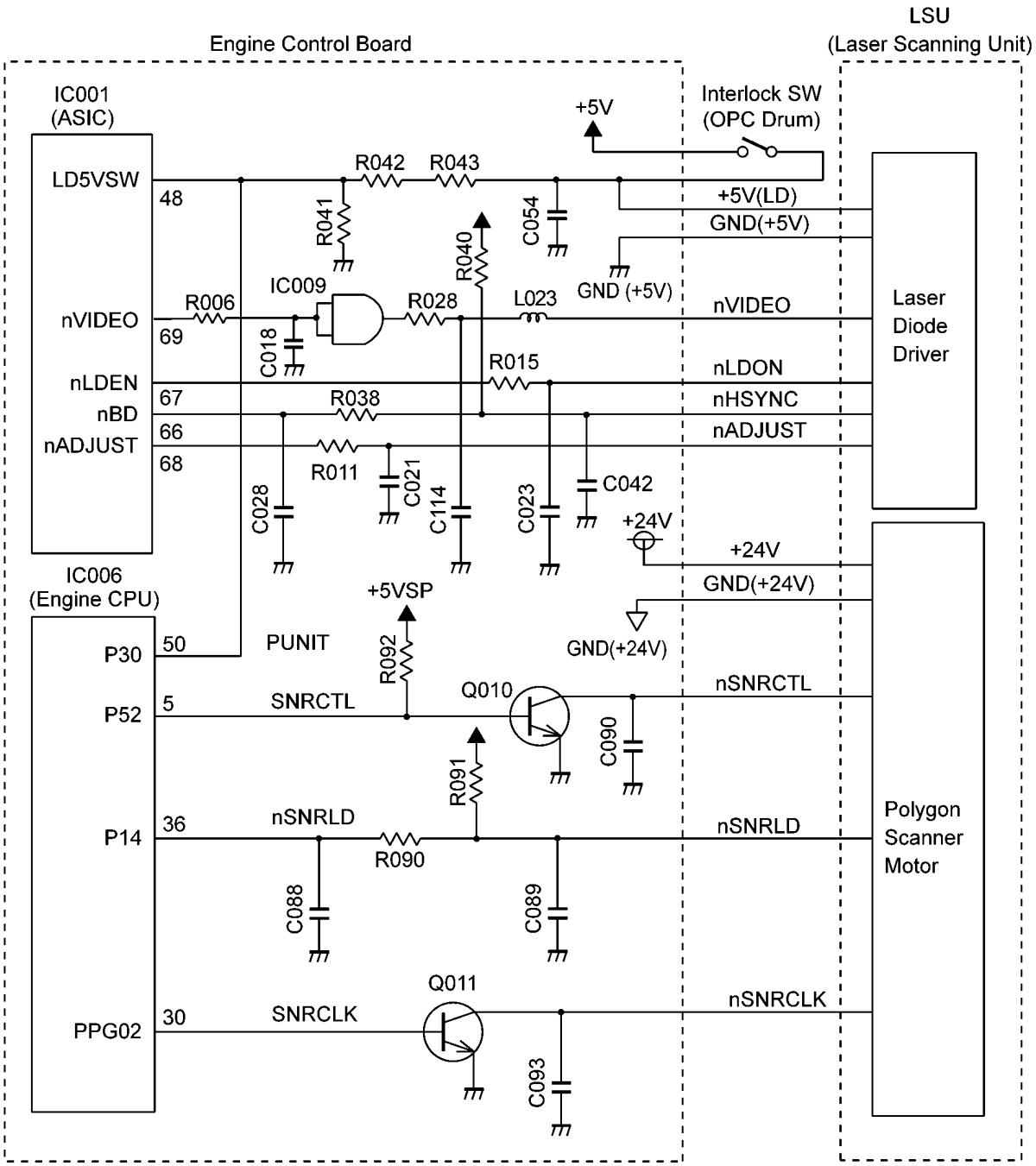


5.4.5. Laser Scanning Unit Control Circuit

The laser unit consists of laser drive circuit and scanner motor drive circuit.

Laser control signals are as follows.

nVIDEO:	This is actual data being printed.
nLDON:	When the nLDON signal is low, the laser unit is activated. When OPC drum unit is not installed, the laser unit is deactivated.
nHSYNC:	This is a horizontal synchronizing signal sent from a timing sensor (laser beam detect sensor) which detects horizontal position of the laser beam across drum.
nADJUST:	When the nADJUST signal is low, APC (Auto Power Control) is activated.
nSNRCTL:	This is a control signal for the scanner motor.
nSNRLD:	The scanner motor speed is maintained at approx. 26K rpm by a PLL (Phase Locked Loop). While the scanner motor rotates (approx. 26K rpm), nSNRLD is low.
nSNRCLK:	This is a reference clock of the scanner motor (approx. 2.6KHz).



5.4.6. Fuser Temperature Control Circuit

The fuser temperature is controlled by IC006 (Engine CPU). IC006 has an analog to digital (A/D) converter (AN0-AN7). Thermistor TH is connected to IC006 (AN0). When IC006 (Pin31) is low, Q009 is turned off. And Q003 is turned on. Then halogen lamp in fuser unit is turned on.

When front door is opened, interlock switch is opened and the halogen lamp is turned off.

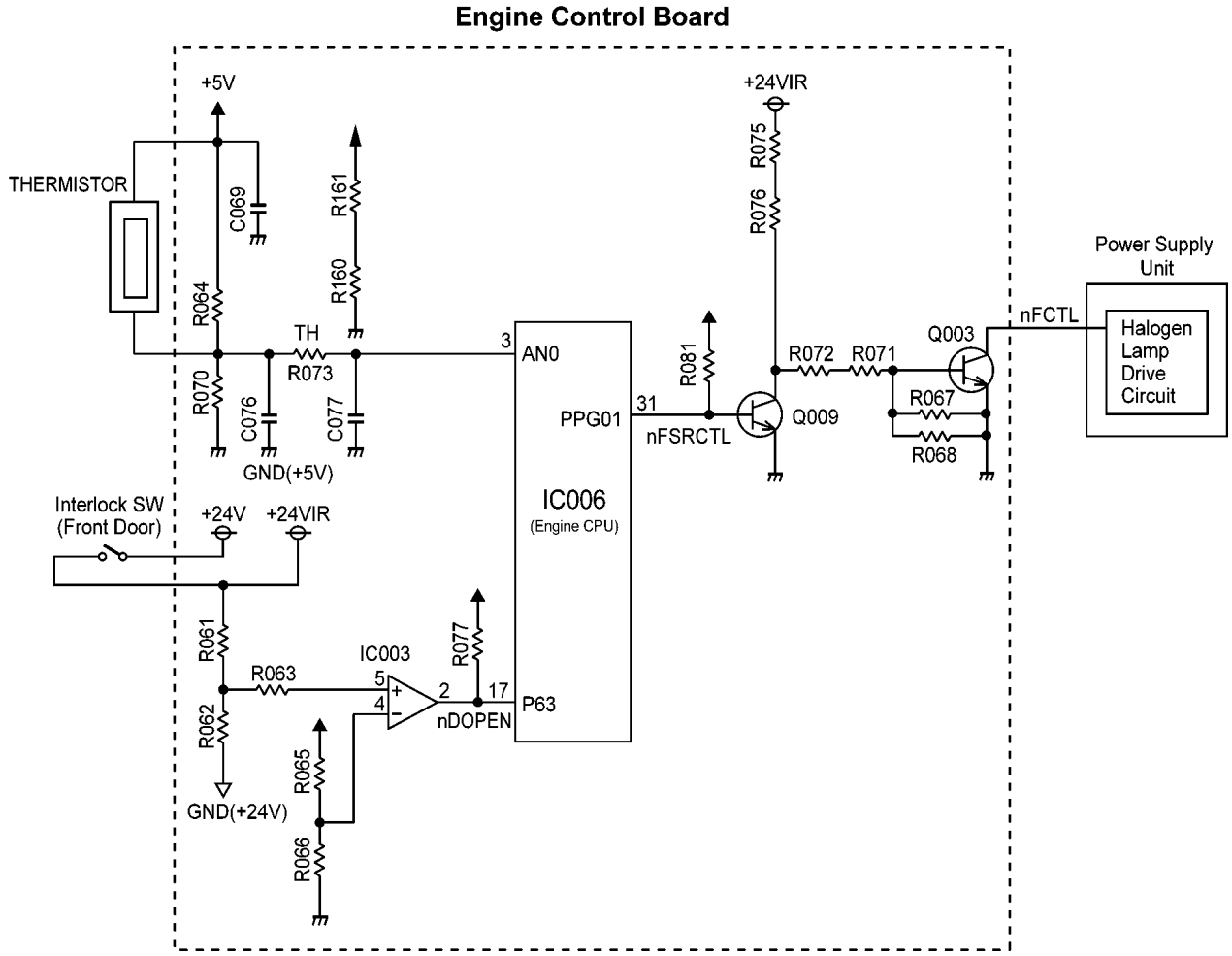
Abnormal temperature detection circuit consists of the following 2 sub-sections.

1. Abnormally Low Temperature Detection

   When abnormally low temperature is detected by IC006 (Engine CPU), IC006 turns off the halogen lamp.

2. Abnormally High Temperature Detection

   When abnormally high temperature is detected by IC006 (Engine CPU), IC006 turns off the halogen lamp.



5.4.7. High Voltage Control Circuit

IMPORTANT SAFETY NOTICE

1. Do not attempt to repair this power supply unit. This supply requires proper calibration after any component replacement. Failure to do so may result in component damage, shock fire or other hazard.
2. High voltage is present on the board. Use caution when measuring voltage levels.

1. Charge Control Circuit

   This circuit consists of a DC-DC converter, which boosts +24V to approximately +5.4kV (constant current approx. +300µA) for the charge corona. nCHGCTL signal controls the charge output. If the signal goes low, the output is turned on.

2. Grid Circuit

   When the charge circuit is activated (when the signal nCHGCTL is low), this circuit is activated and approximately +900V is generated on the grid.

3. Development Bias Control Circuit

   When the charge circuit is activated (when the signal nCHGCTL is low), this circuit is activated.

   This voltage is changed between +100V and +500V in accordance with the PWM (Pulse Width Modulation) signal nDB when the signal nDBCH is low. Also approximately - 150V is generated when signal nDB and nDBCH is high.

4. Transfer Control Circuit

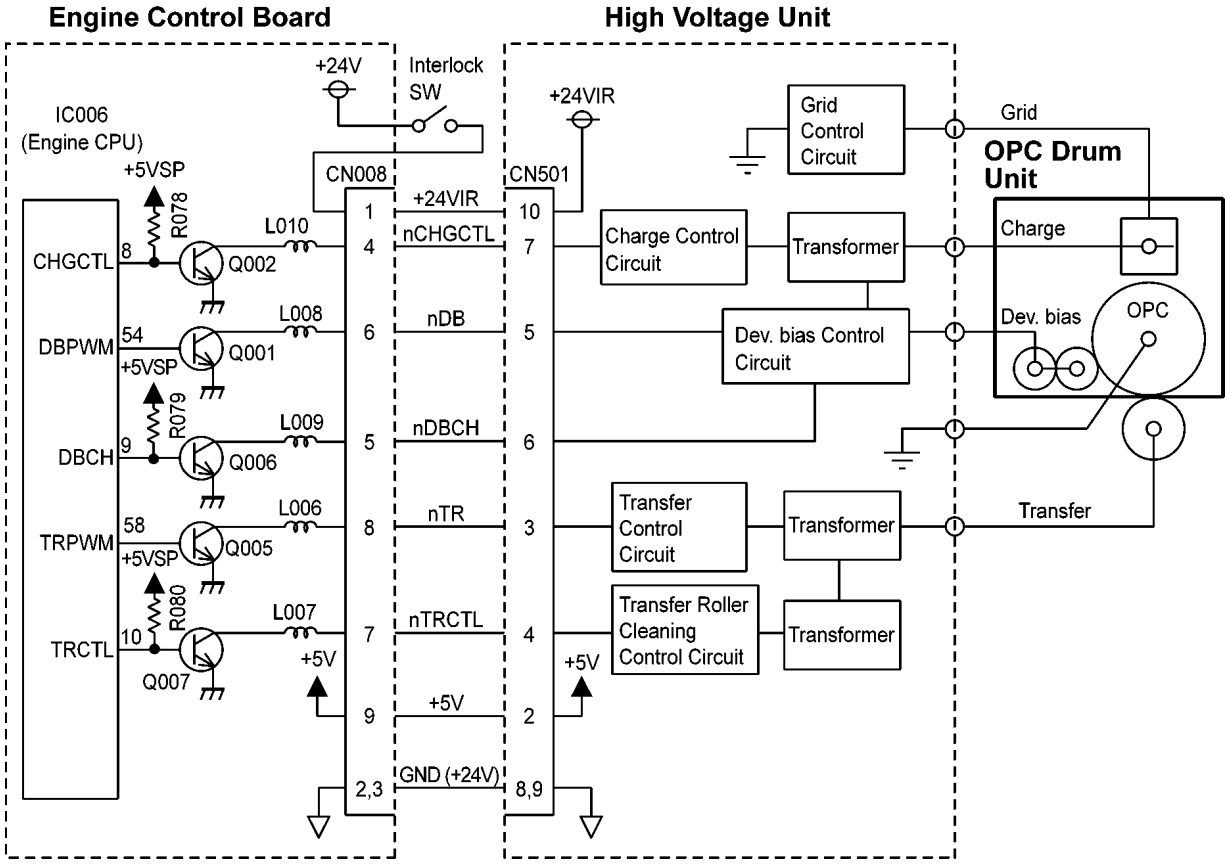
   This circuit consists of a DC-DC converter, which boosts +24V to -700V — -6000V (constant current).

   This current is changed between -4µA and -20µA in accordance with the PWM (Pulse Width Modulation) signal nTR when the signal nTRCTL is high.

5. Transfer Roller Cleaning Control Circuit

   This circuit consists of a DC-DC converter, which boosts +24V to +1500V.

   This voltage is generated when signal nTR is high and nTRCTL is low.

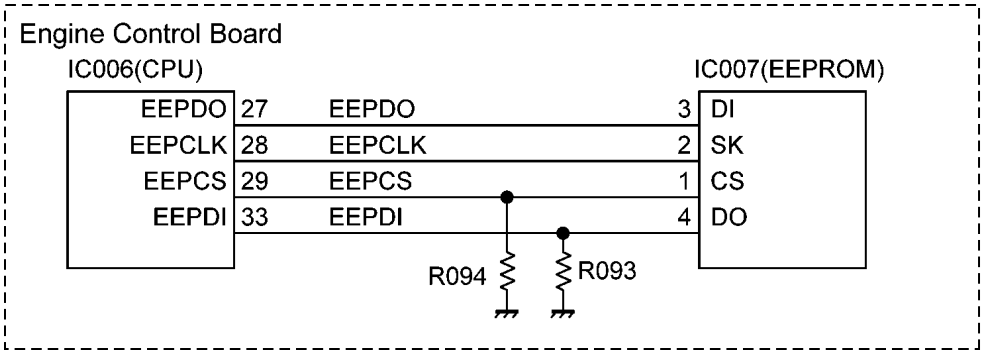


5.4.8. EEPROM Control Circuit

This printer has 2kbit EEPROM (IC007). Page Count Data, Calibration Data, etc. are saved on the IC.

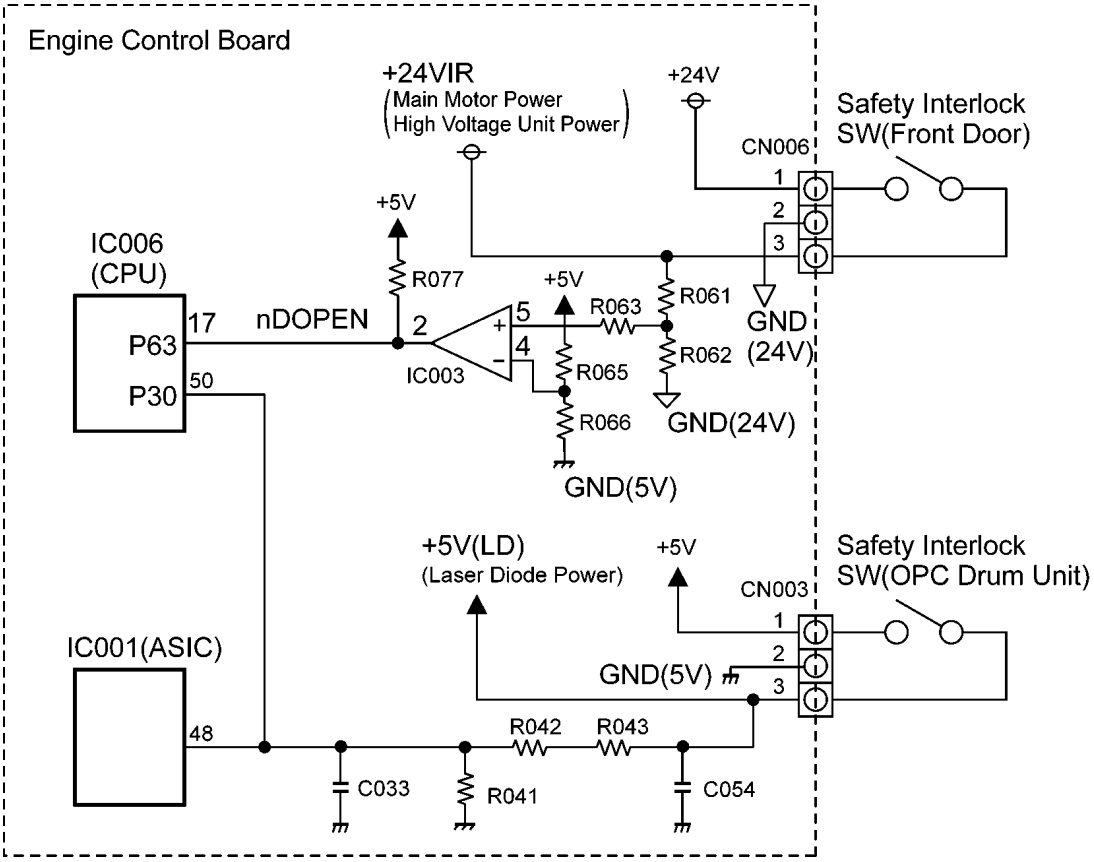
The EEPROM control signals are explained as follows.

EEPCS:	This is the chip select signal.
EEPCLK:	This is the serial data transfer clock.
EEPDO:	This is the serial data from CPU (IC006) to EEPROM (IC007).
EEPDI:	This is the serial data from EEPROM (IC007) to CPU (IC006).



5.4.9. Safety Interlock SW

This printer has two safety interlock switches: front door safety interlock switch, and an OPC drum unit safety interlock switch. +24V power is supplied to the front door safety interlock switch. When the front door is opened, the front door safety interlock switch is opened and shuts off the main motor power and the high voltage unit power. As a result, the comparator output at pin2 of IC003 is changed from a high level to a low level. IC006 (CPU) receives this signal and turns off the main motor control signal, the laser scanning unit, etc. When the OPC drum unit is not installed, the OPC drum unit safety interlock switch is opened and shuts off the +5V power for the laser diode. IC006 (CPU) and IC001 (ASIC) receive this +5V power condition and turn off the main motor control signal, the laser control signals, etc.

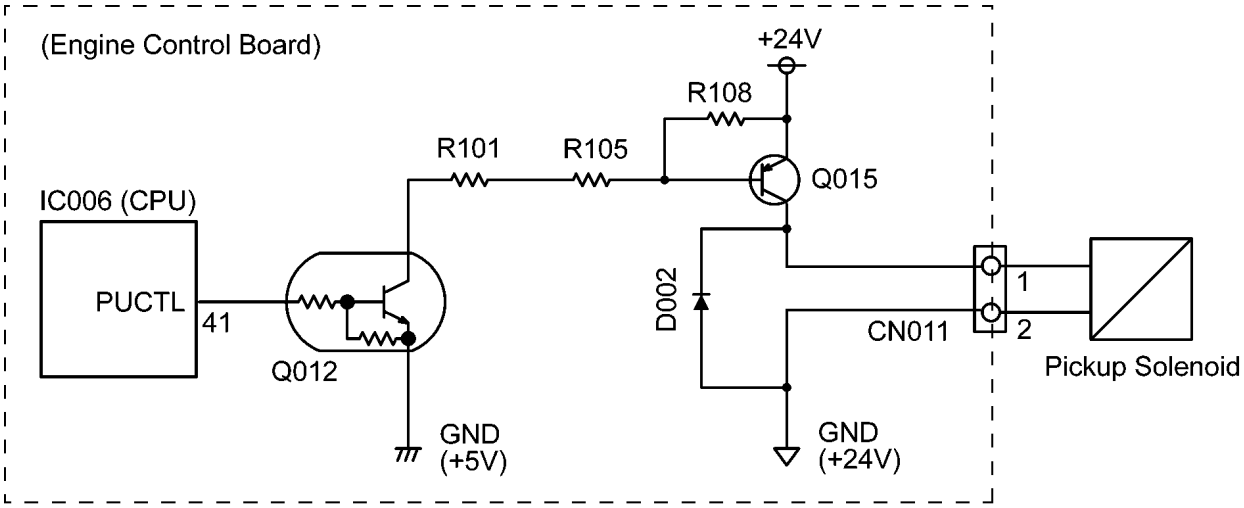


5.4.10. Solenoids Control Circuit

This printer has three solenoids: pickup solenoid, registration solenoid and a switchback solenoid.

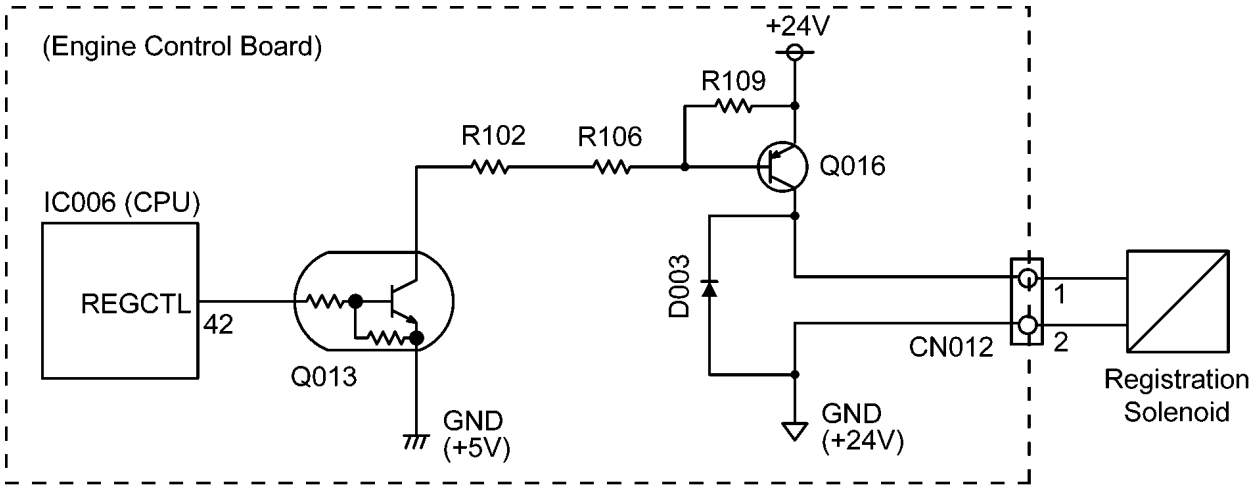
5.4.10.1. The Pickup Control Solenoid Drive Circuit

The pickup solenoid is used for picking up the media from the media tray. The CPU IC006 outputs high level PUCTL signal from pin41 to the transistor Q012. The transistor Q012 and Q015 are turned on and supplies +24V power to the solenoid.



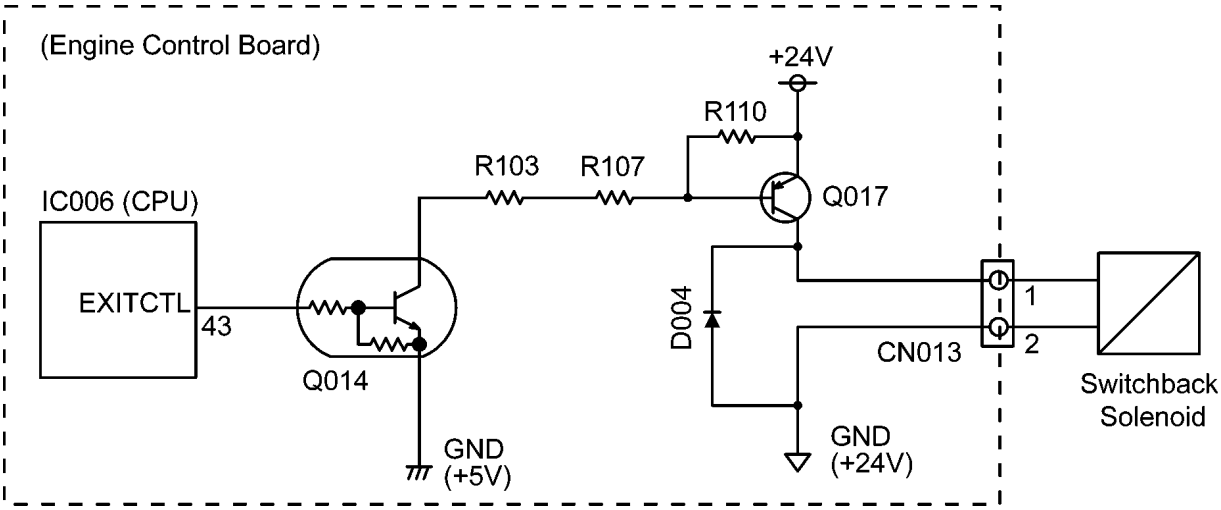
5.4.10.2. The Registration Solenoid Driver Circuit

The registration solenoid is used for controlling Registration Roller rotation. The CPU IC006 outputs high level REGCTL signal from pin42 to the transistor Q013. The transistor Q013 and Q016 are turned on and supplies +24V power to the solenoid.



5.4.10.3. The Switchback Solenoid Drive Control Circuit

The switchback solenoid is used for controlling media switchback when the printer is auto duplex printing. The CPU IC006 outputs high level EXITCTL signal from pin43 to the transistor Q014. The transistor Q014 and Q017 are turned on and supplies +24V power to the solenoid.

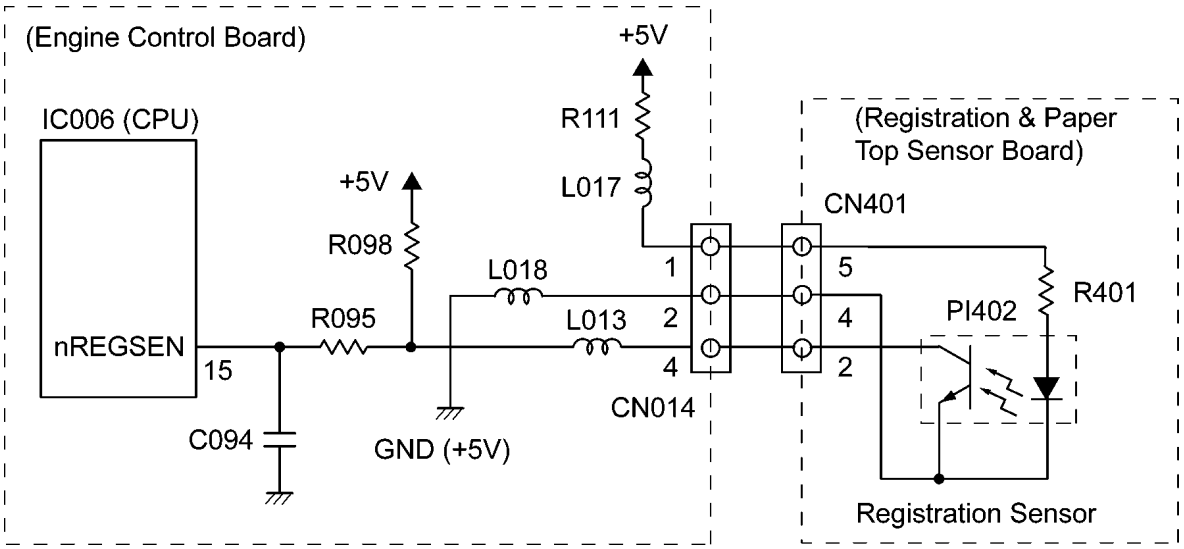


5.4.11. Sensors Circuit

The printer has four photo sensors: Registration sensor, Top sensor, Exit sensor and Paper Empty Sensor.

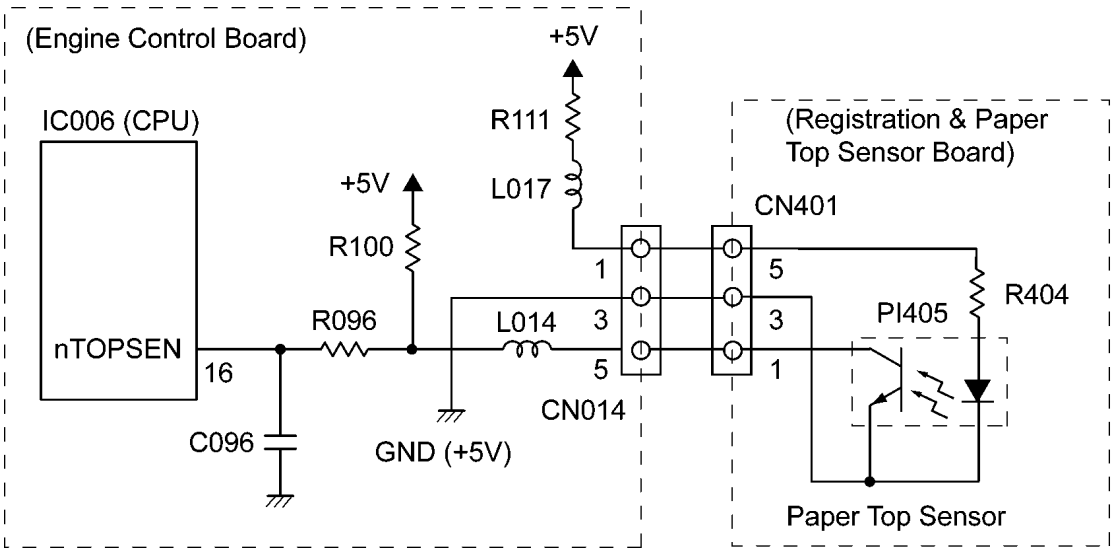
5.4.11.1. Registration Sensor Circuit

Registration sensor detects that the media is in front of the Registration Roller. When the registration sensor detects the media, nREGSEN signal changes from high level to low level.



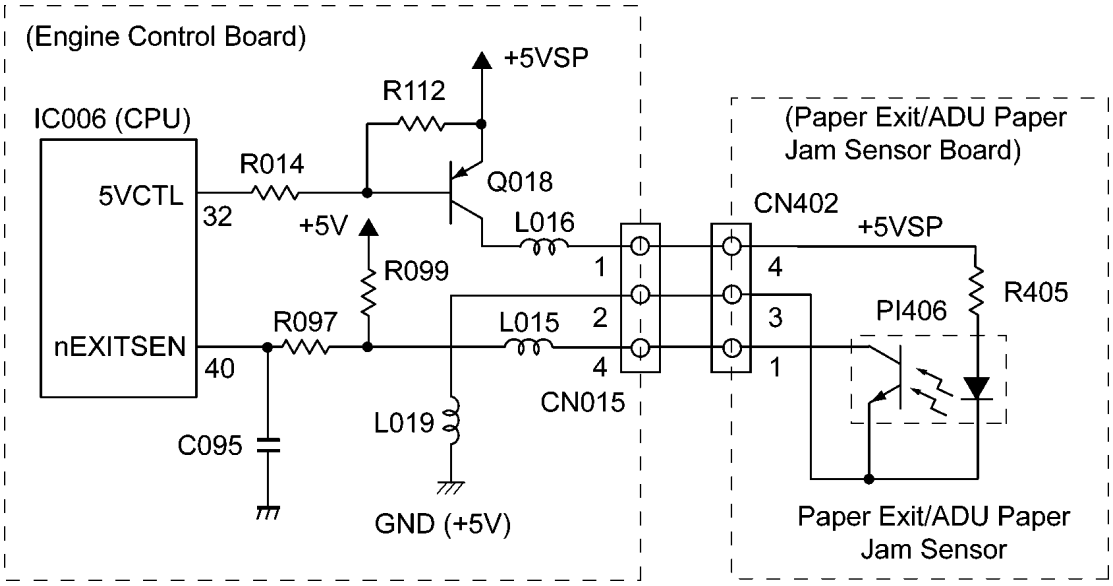
5.4.11.2. Top Sensor Circuit

Top sensor detects that the media has past the Registration Roller. When the top sensor detects the media, nTOPSEN signal changes from high level to low level. This nTOPSEN signal is used for printing start trigger and Top Margin Adjustment.



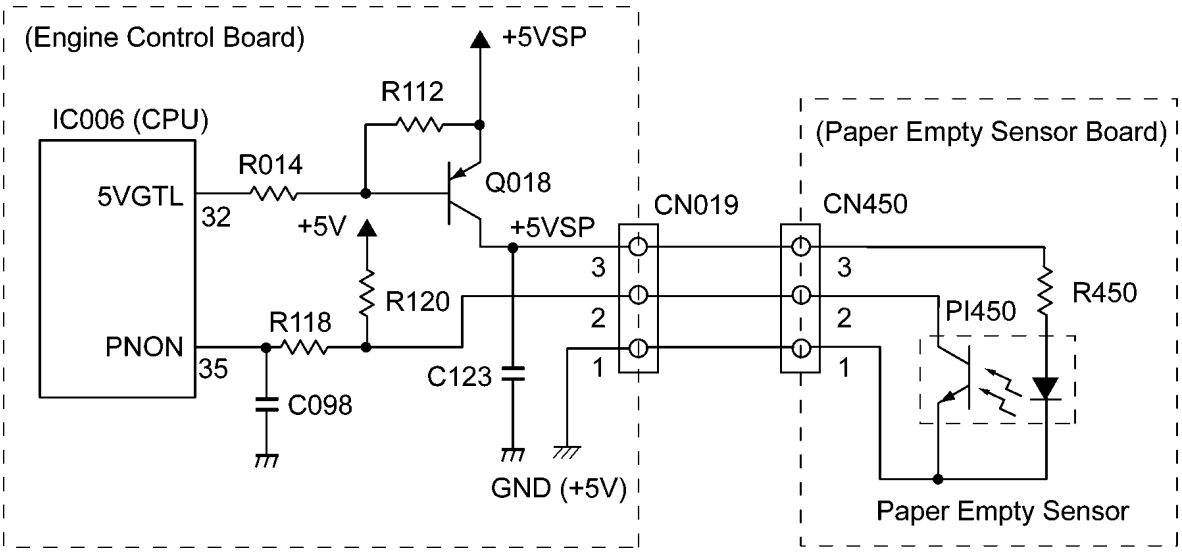
5.4.11.3. Exit Sensor Circuit

Exit sensor detects that the media is at the rear of the Fuser Roller (Exit of the printer). When the exit sensor detects the media, nEXITSEN signal changes from high level to low level. +5VSP is the power of the photo sensors. When the 5VCTL signal at pin32 of IC006 (CPU) is low level, the transistor Q018 is turned on. This supplies +5V power to the photo sensors.



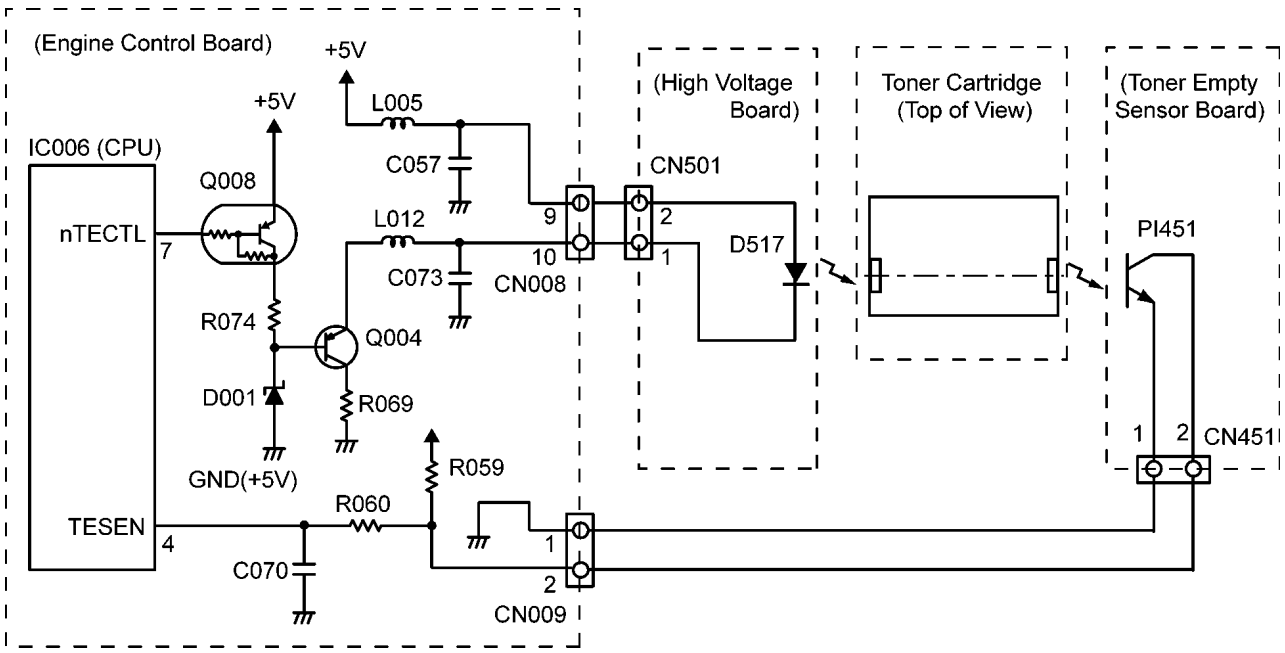
5.4.11.4. Paper Empty Sensor Circuit

Paper sensor detects that the media is at the Paper Cassette or not. When the media is set in the Paper Cassette, PNON signal becomes low level. +5VSP is the power of the photo sensors. When the 5VCTL signal at pin32 of IC006 (CPU) is low level, the transistor Q018 is turned on. This supplies +5V power to the photo sensors.



5.4.11.5. Toner Empty Sensor Circuit

Toner empty sensor detects the shortage of toner. IC006 (CPU) sends the nTECTL (pin7, IC006) signal to Q008. When the nTECTL is low level, transistors Q008 and Q004 are turned on. and LED D517 emits light. If the toner is shorted (empty), the light from LED D517 passes through the lens of the Toner Cartridge. When the photo transistor PI451 receives the light, the PI451 is turned on, and the TESEN (pin4, IC004) signal becomes low.



5.4.12. Fan Control Circuit

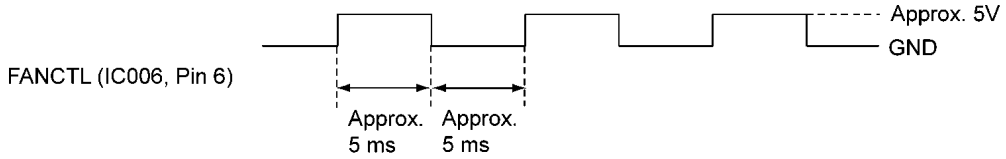
FANCTL:

1. Full Power Mode

   When FANCTL signal (pin 6, IC006) is high, pin 14 of IC003 goes high, transistors Q019 and Q022 are turned on. This supplies +24V Power to Fan motor and rotates the Fan.

2. Reducing Power Mode (Quiet Mode)

   Pulse signal (see below) is output from pin 6 of IC006.



This pulse signal is integrated by R114 and C097. Voltage of (A) is stabilized at approx. 2V.

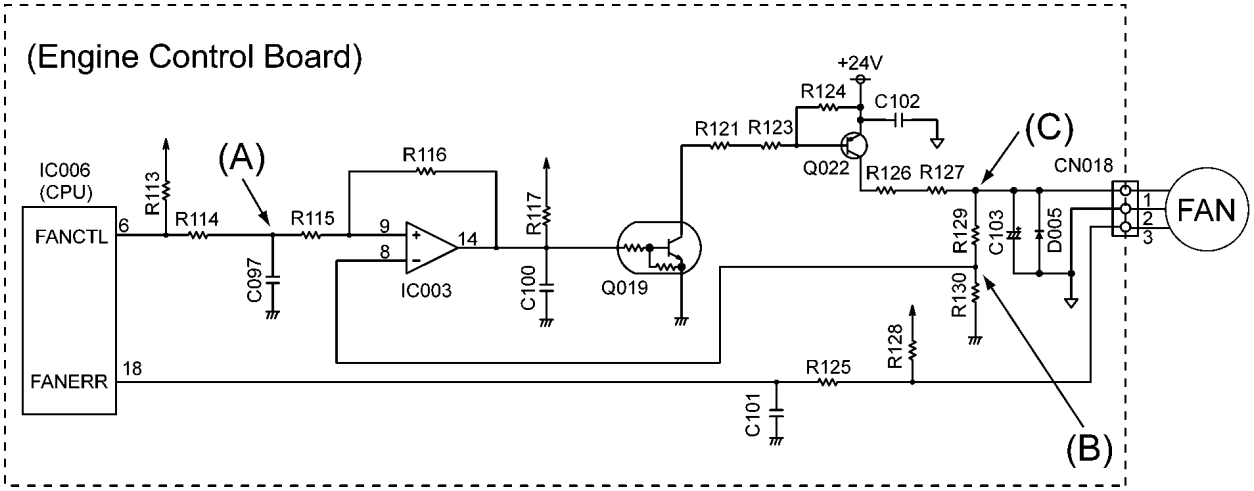
When the voltage of (B) is lower than the voltage of (A), pin 14 of IC003 goes high, Q019 and Q022 are turned on, then the voltage of (B) increases. When the voltage of (B) is higher than (A), pin 14 of IC003 goes low, Q019 and Q022 are turned off, then voltage of (B) decreases. Thus the voltage of (B) is controlled almost same as the voltage of (A) (= approx. 2V). Since the resistor network of R129 and R130 divide the voltage of (C) into 1/8, the voltage of (C) is controlled approx. 16V (= 2V x 8).

FAN Control Mode

Mode	FAN Power
Warm Up	Full
Printing	Full
Others	Reduced

FANERR:

This signal is used for detecting whether the rotation of fan motor is proper or not. When the fan motor is not rotating properly, this signal is two pulses per revolution with 50% duty cycle. At locked rotor, this signal is held at high (or low)



5.4.13. 2nd Feeder I/F Circuit

The 2nd Feeder control signals are explained as follows.

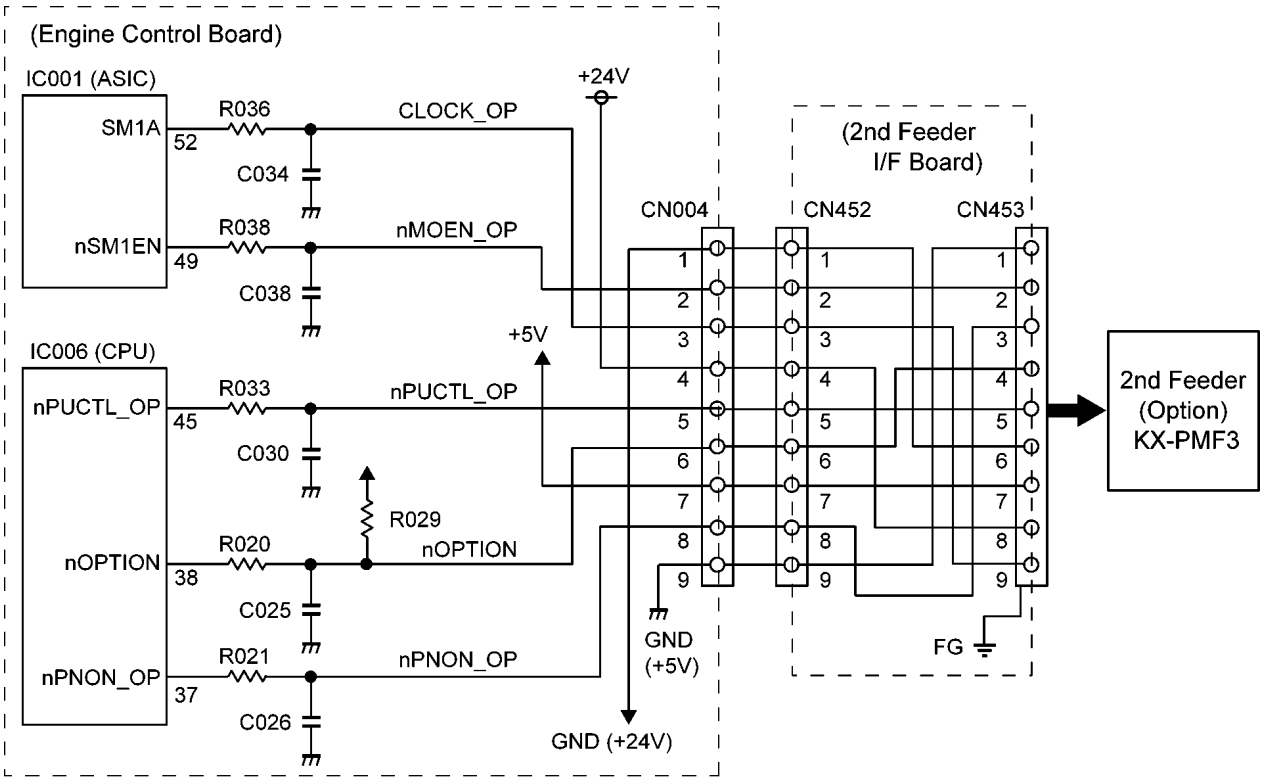
CLOCK_OP: This is the clock signal. 2nd Feeder Board generates motor drive signals for 2nd Feeder Motor from this clock signal.

nMOEN_OP: This is the control signal for 2nd Feeder Motor. When IC001 sends the low level nMOEN_OP signal, the 2nd Feeder Motor is rotated.

nPUCTL_OP: This is the control signal for the pickup solenoid in the 2nd Feeder. When IC004 sends the low level nPUCTL_OP signal, the pickup solenoid is activated.

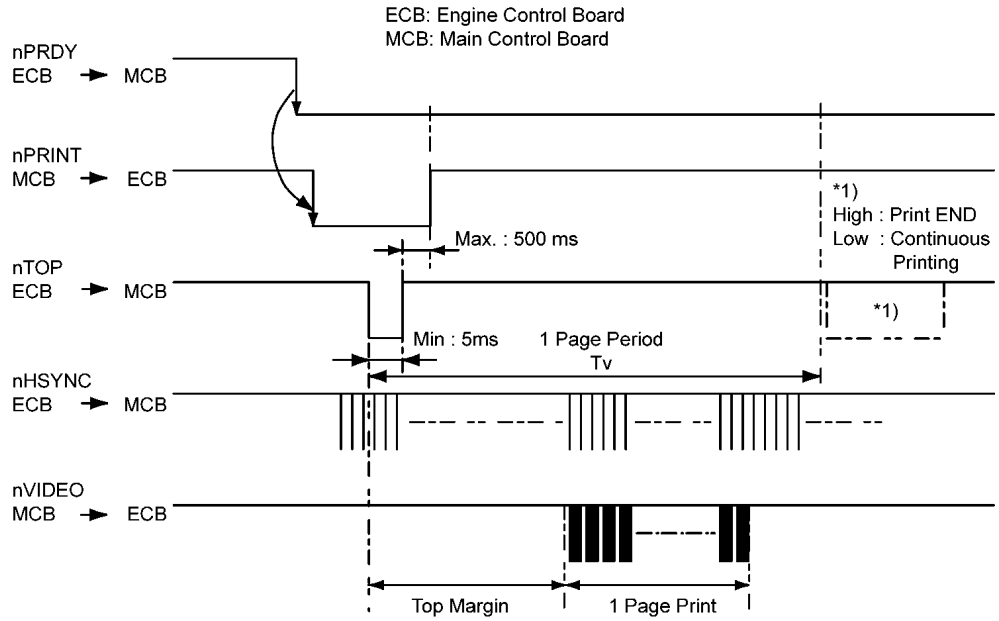
nOPTION: This is the detection signal whether the 2nd Feeder is connected to the printer or not. When the 2nd Feeder is connected to the printer, the nOPTION signal becomes low level.

nPNON_OP: This is the detection signal whether the media is at the 2nd Feeder Paper Cassette or not. When the media is set in the 2nd Feeder Paper Cassette, nPNON_OP signal becomes low level.

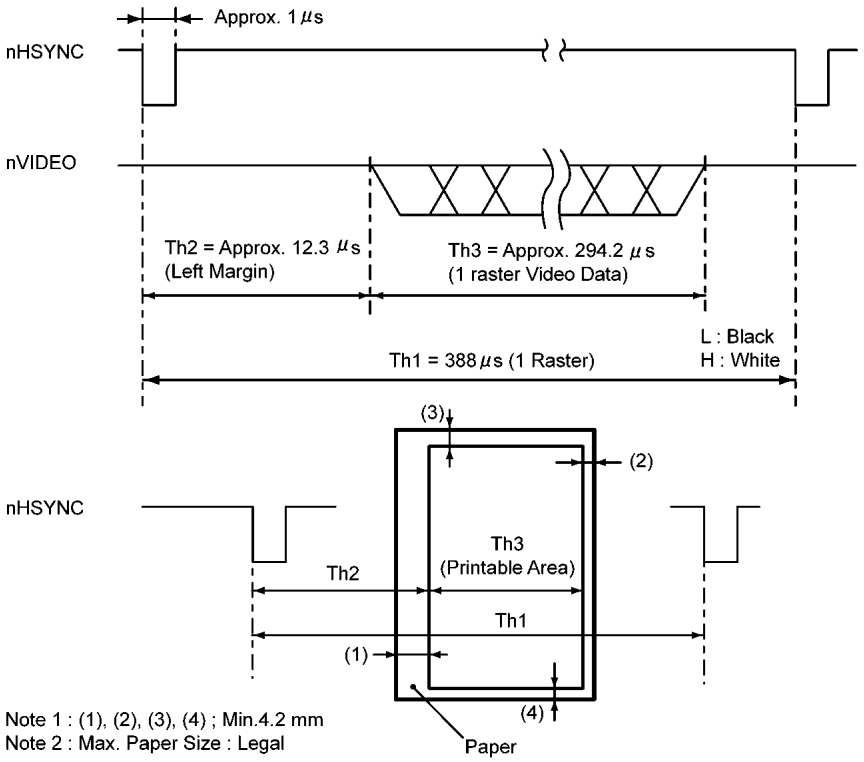


5.4.14. Timing Chart

5.4.14.1. Vertical Print Timing



5.4.14.2. Horizontal Print Timing (Relationship between nHSYNC and Video Signal)



Note 1 : (1), (2), (3), (4) ; Min.4.2 mm
Note 2 : Max. Paper Size : Legal

5.5. Main Control Board

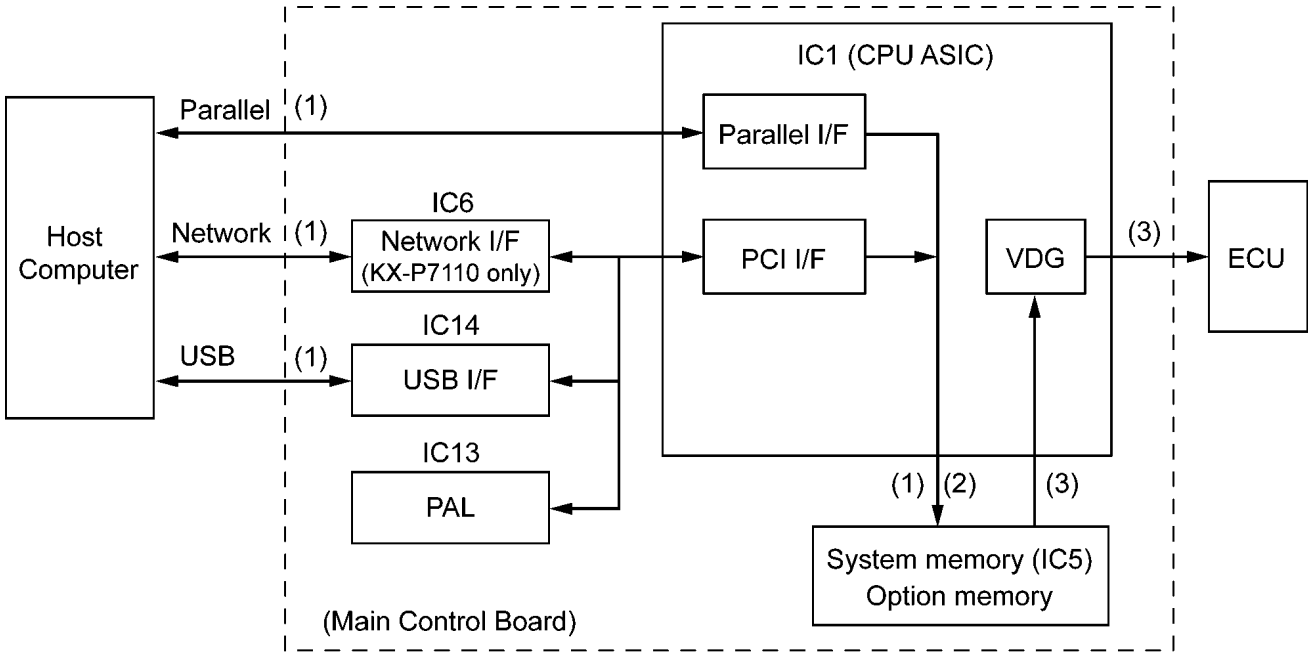
5.5.1. Data Flow

The following indicates the data flow when communicating with the host computer using these interfaces.

(1) The print data transfer by the host computer is received by Parallel I/F, USB I/F or Network I/F (for KX-P7310 only) controlled by CPU ASIC (IC1), and stored in the system memory. The system memory is also controlled by the CPU ASIC (IC1)

(2) The print data stored in the system memory is analyzed and rendered into an image (ex. the arrangement and generation of fonts and images) by CPU ASIC (IC1), and the image data is stored in the system memory.

(3) The image data stored in the memory is converted into video data by the CPU ASIC (IC1) internal Video Data Generator (VDG) and the video data is outputted to the ECU (Engine Control Unit) in response to requests.

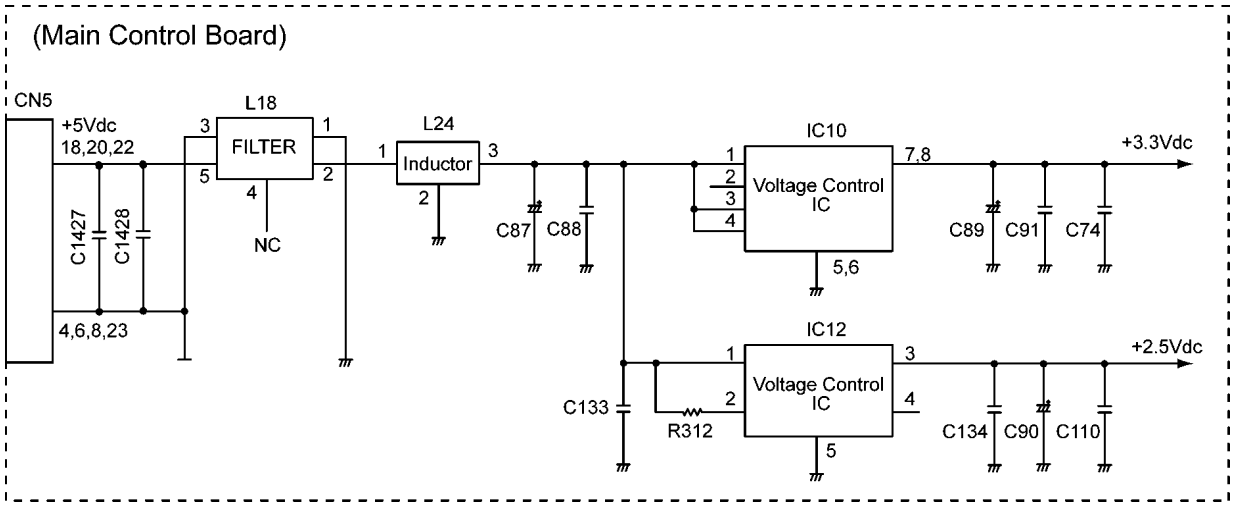


5.5.2. Power Supply

There are some circuits in the main control board that are operated by +3.3V or +2.5V.

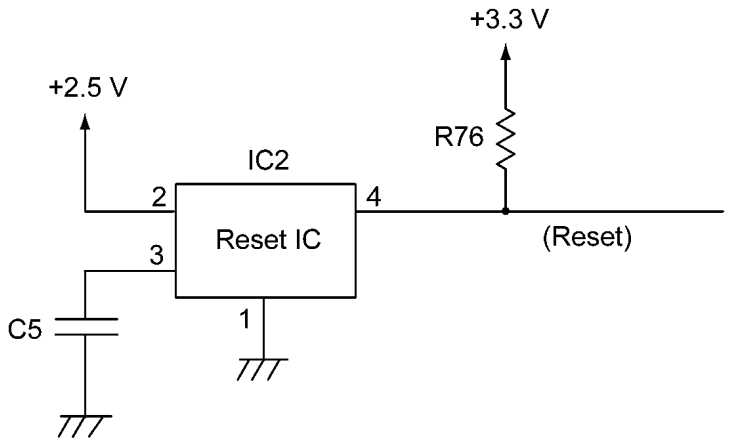
IC10 converts the voltage from +5V to +3.3V.

IC12 converts the voltage from +5V to +2.5V.

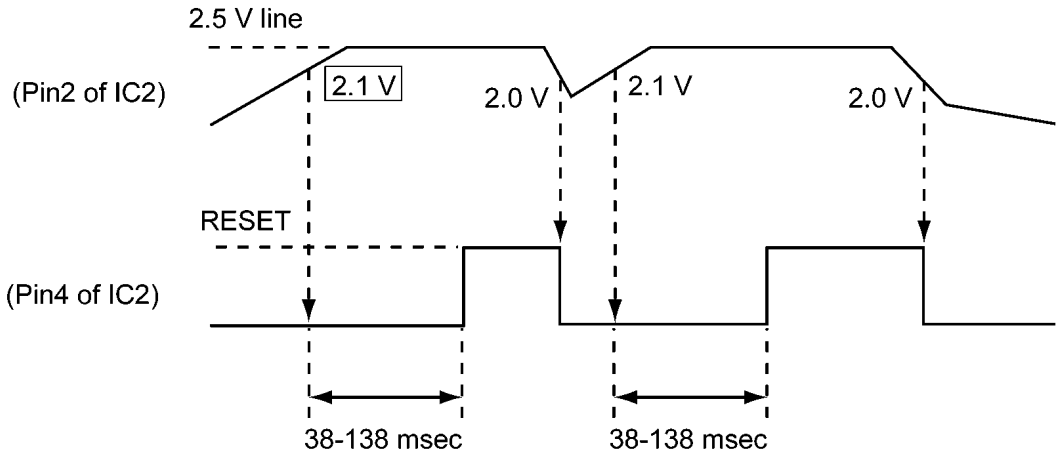


5.5.3. Reset Circuit

IC2 is RESET control IC. IC2 output reset signal wave on pin4, after it find the voltage of 2.5V line. If it is equal 2.1V, pin4 output " H " level after delay time. When power sw is turned on, reset timing is 38-138ms.

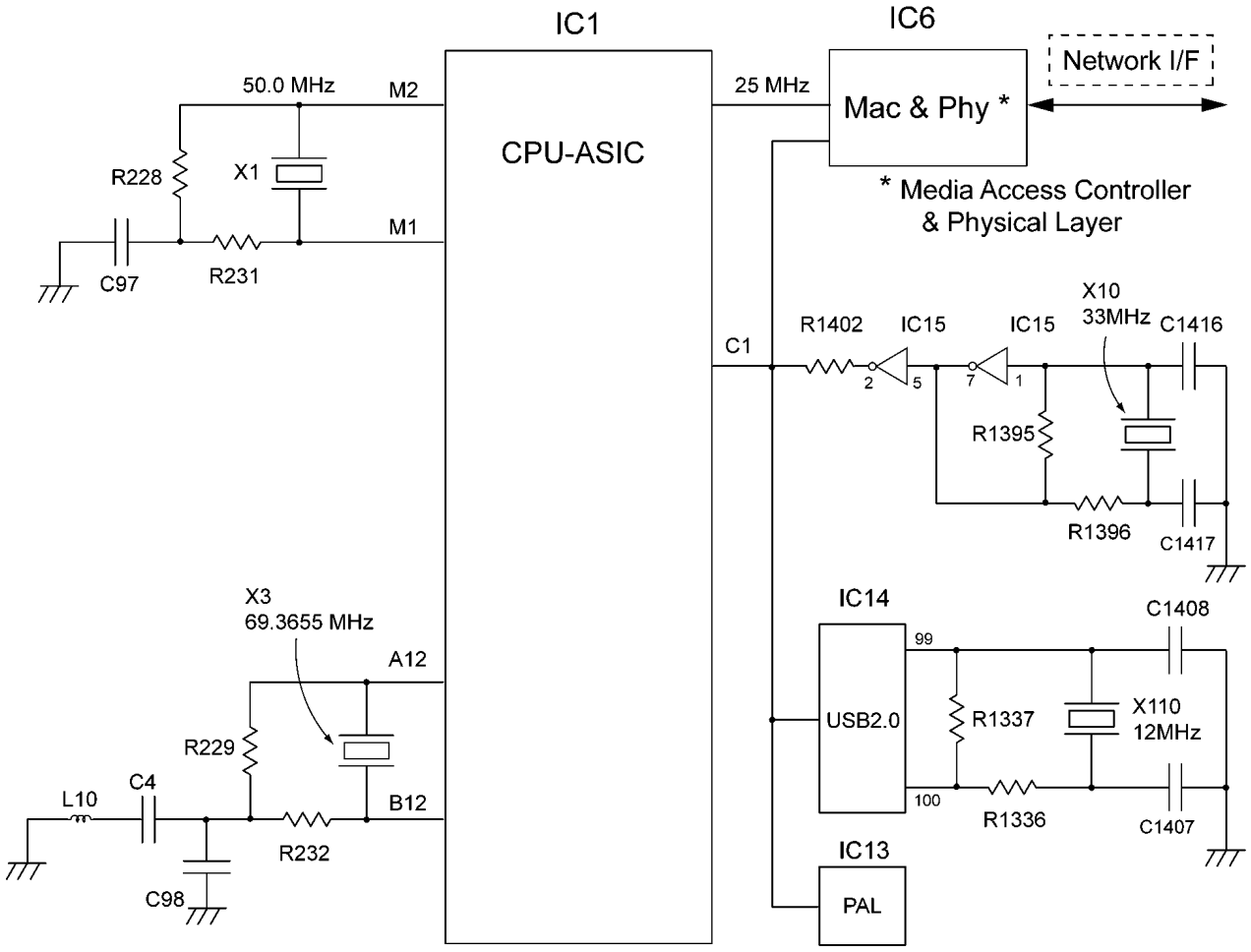


Timing Chart



5.5.4. Clock Circuit

50MHz-CLK is for system (CPU, memory and ROM control) and for Network (LAN) I/F communication. 33MHz is for PCI communication. 12MHz-CLK is for USB controller. 69.3655MHz-CLK is for video clock source.



5.5.5. CPU ASIC (IC1) overview

The CPU_ASIC (IC 1) is a high-performance integrated printer processor that combines a CPU core, a video data generator(VDG), and numerous printer controller features on a single chip.

The CPU_ASIC has the function macro modules as follows.

- CPU
- SDRAM I/F
- ROM I/F
- VDG
- IEEE1284 I/F
- PCI I/F (for Network I/F and USB2.0)
- Timer
- IO I/F

The CPU_ASIC controls the following functions.

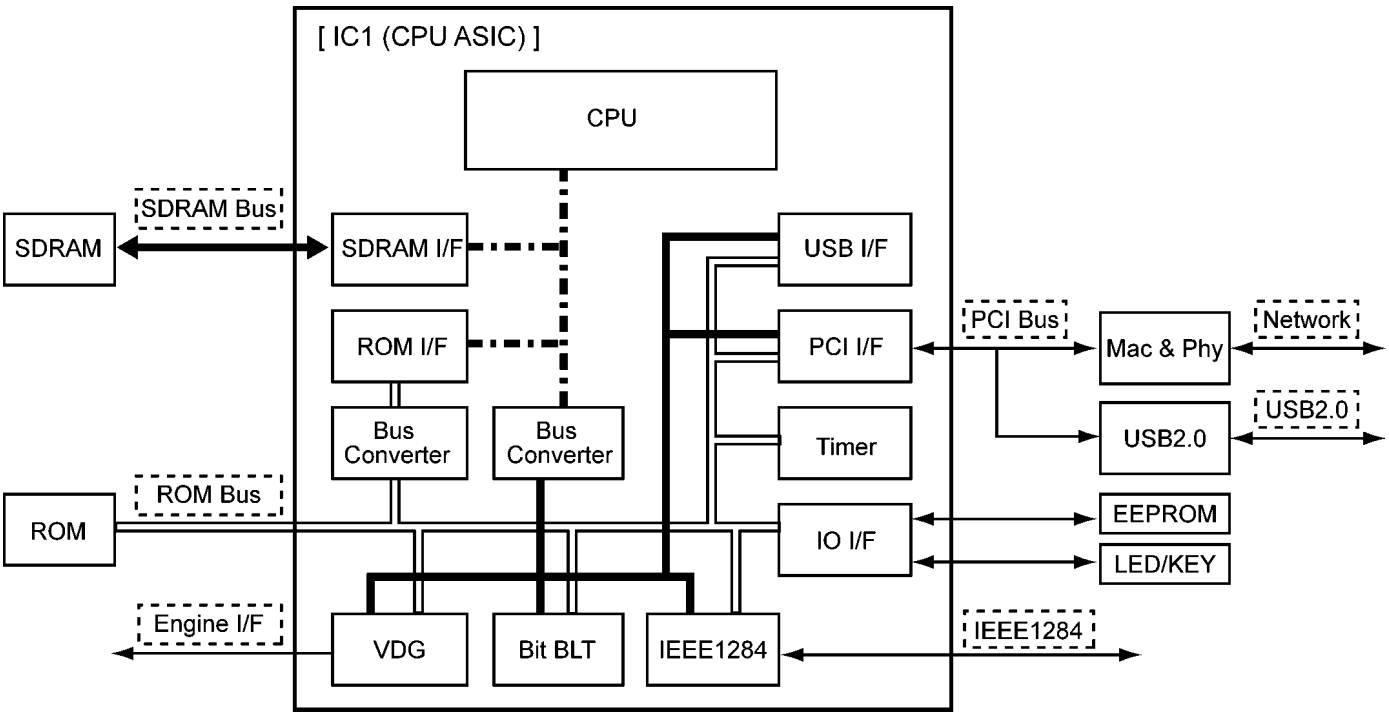
- Process the print data from host PC
- Initialization and control of Memories (ROM/SDRAM)
- Control the Interface (IEEE1284/ PCI/ Engine) port
- Control of LED and detection of key on the front panel

The CPU_ASIC (IC1) has the following three types of external bus interface for connection with peripheral devices.

- ROM Bus
- SDRAM Bus
- PCI Bus

The ROM Bus, which operates asynchronously with the CPU clock, is to be used for connection with the Mask ROM or the Flash ROM devices (IC3) and controls the devices directly. The SDRAM Bus, which is synchronized with the CPU clock (100MHz), is the bus to be used for connection with the SDRAM Devices (IC5, Option RAM CN2) and controls the devices directly. The PCI Bus, which is synchronized with the PCI clock (33MHz), is for connection with the Mac & Phy (Media Access Controller & Physical Layer) device (IC6) and USB2.0 devise (IC14).

The Block Diagram of CPU_ASIC(IC1) is as follows.



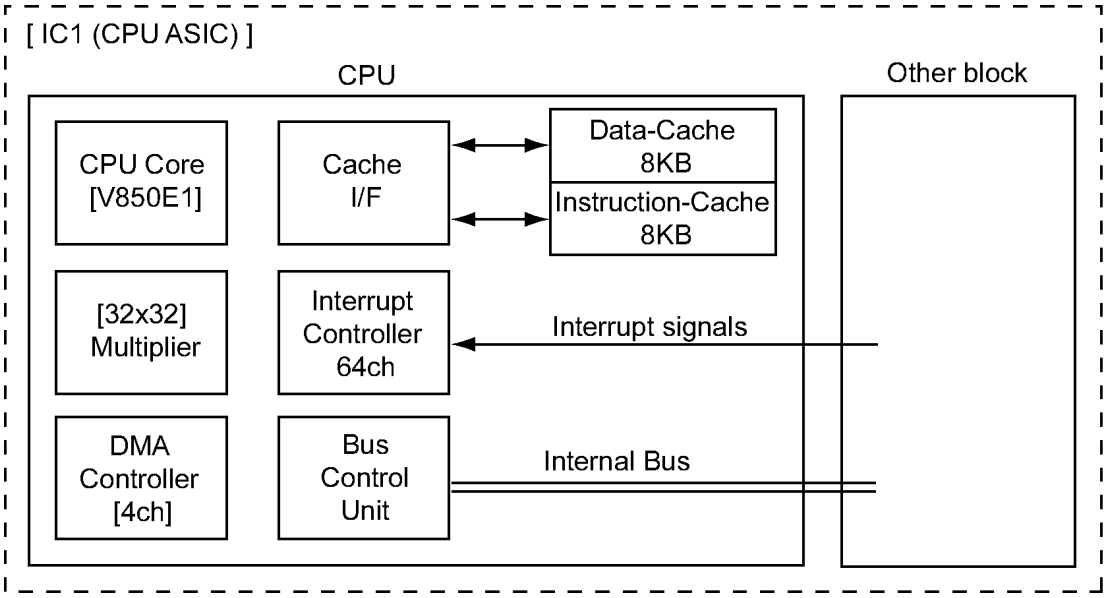
5.5.5.1. CPU

The CPU is equipped with the “V850E1”, which is a RISC type CPU that utilizes a five-stage pipeline technique.

In addition, to increase the speed of multiplication processing, the CPU contains an on-chip high-speed hardware multiplier capable of executing 32-bit x 32-bit operations.

The features of the CPU are as follows.

1. 100MHz 32bit RISC CPU core
2. Multiply-Accumulate hardware (32x32) and a barrel shifter (32bits/clock)
3. 5-stage pipeline
4. 8KB 2ways set associative instruction cache and 8KB 2ways set associative data cache
5. Includes INTC and DMAC (memory to memory transfer)

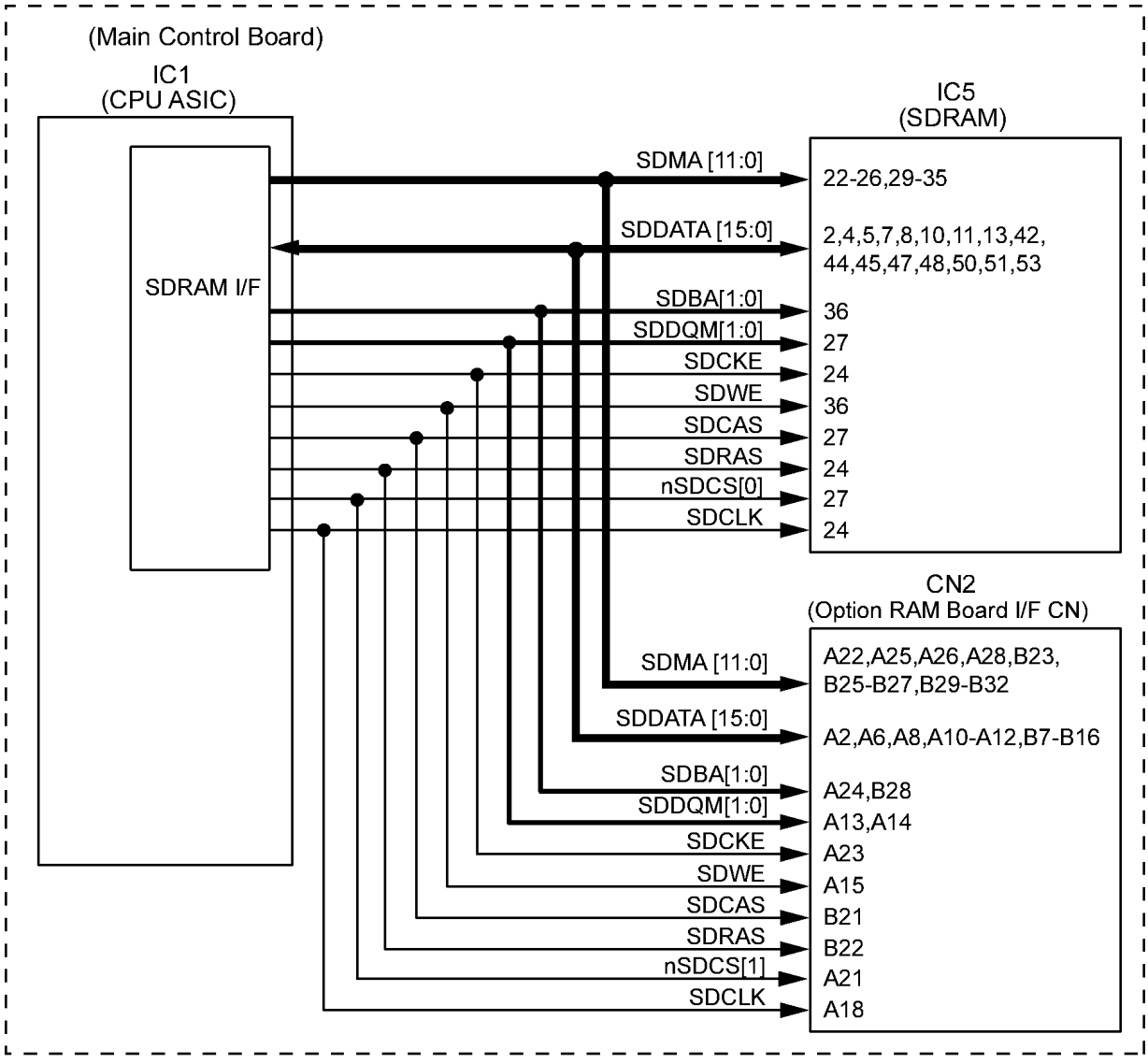


5.5.5.2. SDRAM I/F

The CPU ASIC (IC1) integrates a high-performance memory controller. The SDRAM I/F, which is the basic macro in CPU ASIC (IC1) for controlling external SDRAM devices.

The control signals of SDRAM devices are as follows.

SDMA [11:0]:	These signals constitute the external SDRAM address bus.
SDDATA [15:0]:	These signals constitute a bidirectional data bus for external SDRAM.
SDBA [1:0]:	These signals constitute the external SDRAM Bank address.
SDDQM [1:0]:	These are the data mask output signals for external SDRAM.
SDCKE:	This is the clock enable output signal for external SDRAM.
SDWE:	This is the data write enable output signal for external SDRAM.
SDCAS:	This is the column address strobe output signal for external SDRAM.
SDRAS:	This is the row address strobe output signal for external SDRAM.
nSDCS [0]:	These are the chip select output signals for the standard SDRAM device.
nSDCS [1]	These are the chip select output signals for optional SDRAM devices.
SDCLK:	This is the synchronization clock output signal for external SDRAM.

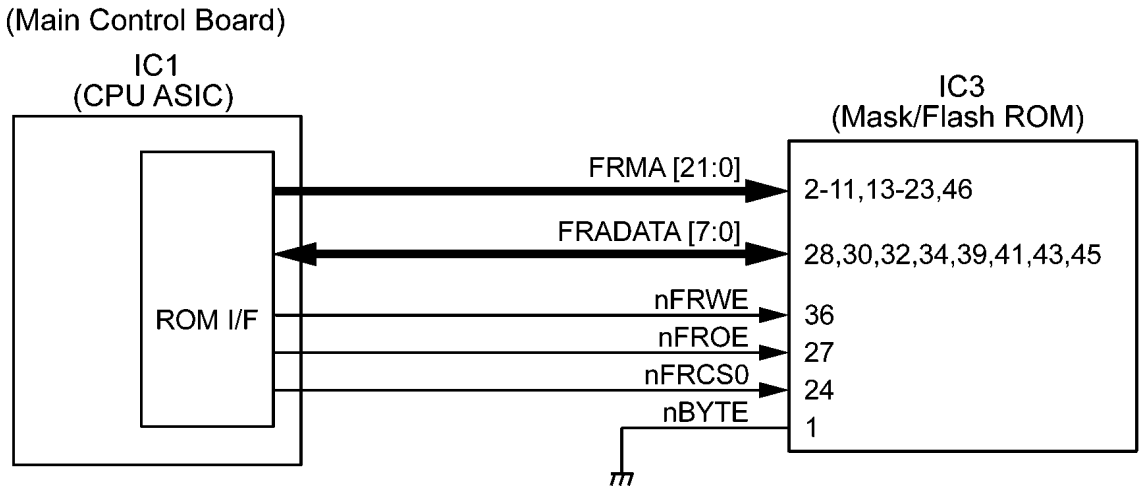


5.5.5.3. ROM I/F

The ROM I/F, which is the basic macro in CPU ASIC (IC1) for controlling external memory devices (Mask ROM, Flash ROM).

The control signals of ROM devices are as follows.

FRMA [21:0]:	These signals constitute the external ROM address bus.
FRDATA [7:0]:	These signals constitute a bidirectional data bus for external ROM.
nFRWE:	This is the write strobe output signal for making external Flash ROM active.
nFROE:	This is the output enable signal for Mask ROM or Flash ROM.
nFRCS0:	This is the chip select output signal for standard the Mask ROM or the Flash ROM.

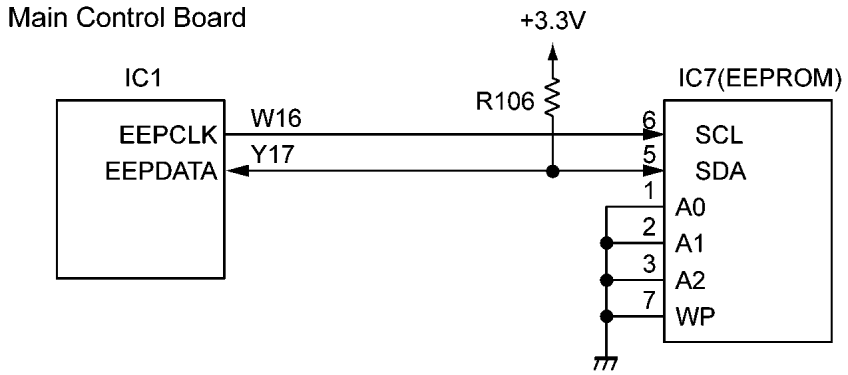


5.5.5.4. EEPROM Control Circuit

This printer has 32kbit (KX-P7310) or 4kbit (KX-P7305) EEPROM (IC7). EEPROM is saved the Page Count Data, Carribration Data, etc.

The EEPROM control signals are explained as follows.

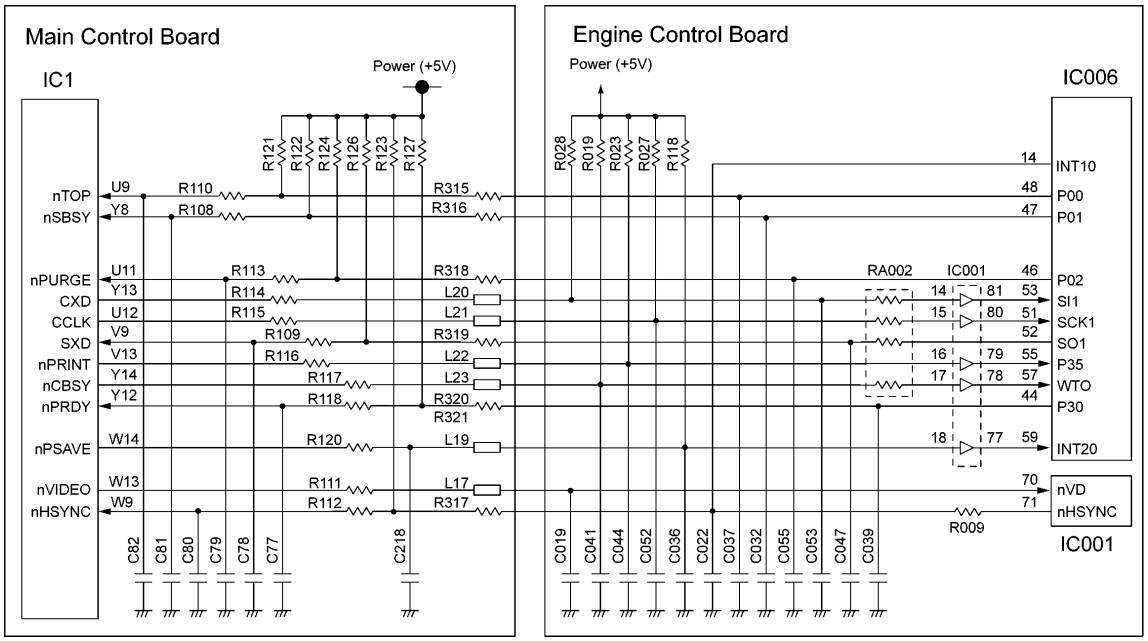
EEPCLK:	This is the serial data transfer clock.
EEPDATA:	The bidirectional serial data/address signal is used to transfer all data into and out of the device.

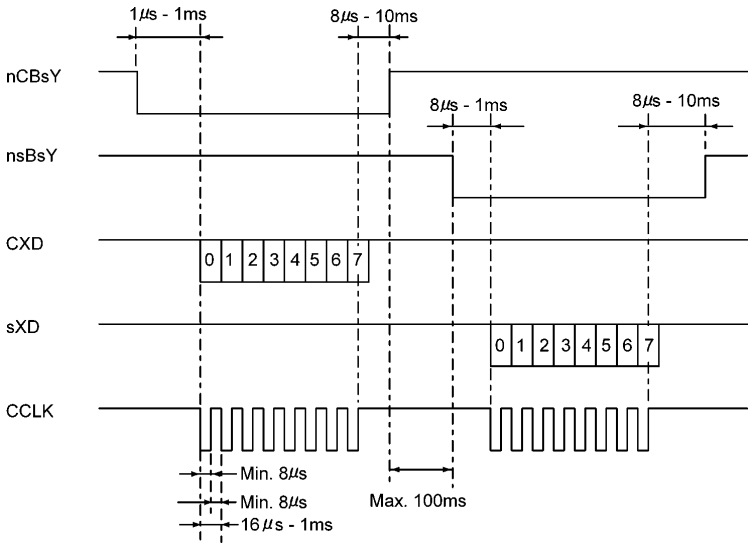


5.5.5.5. Internal Engine I/F (Main Board - Engine Board)

The communication I/F signal between Main Board and Engine Board in Main Board is as follows.

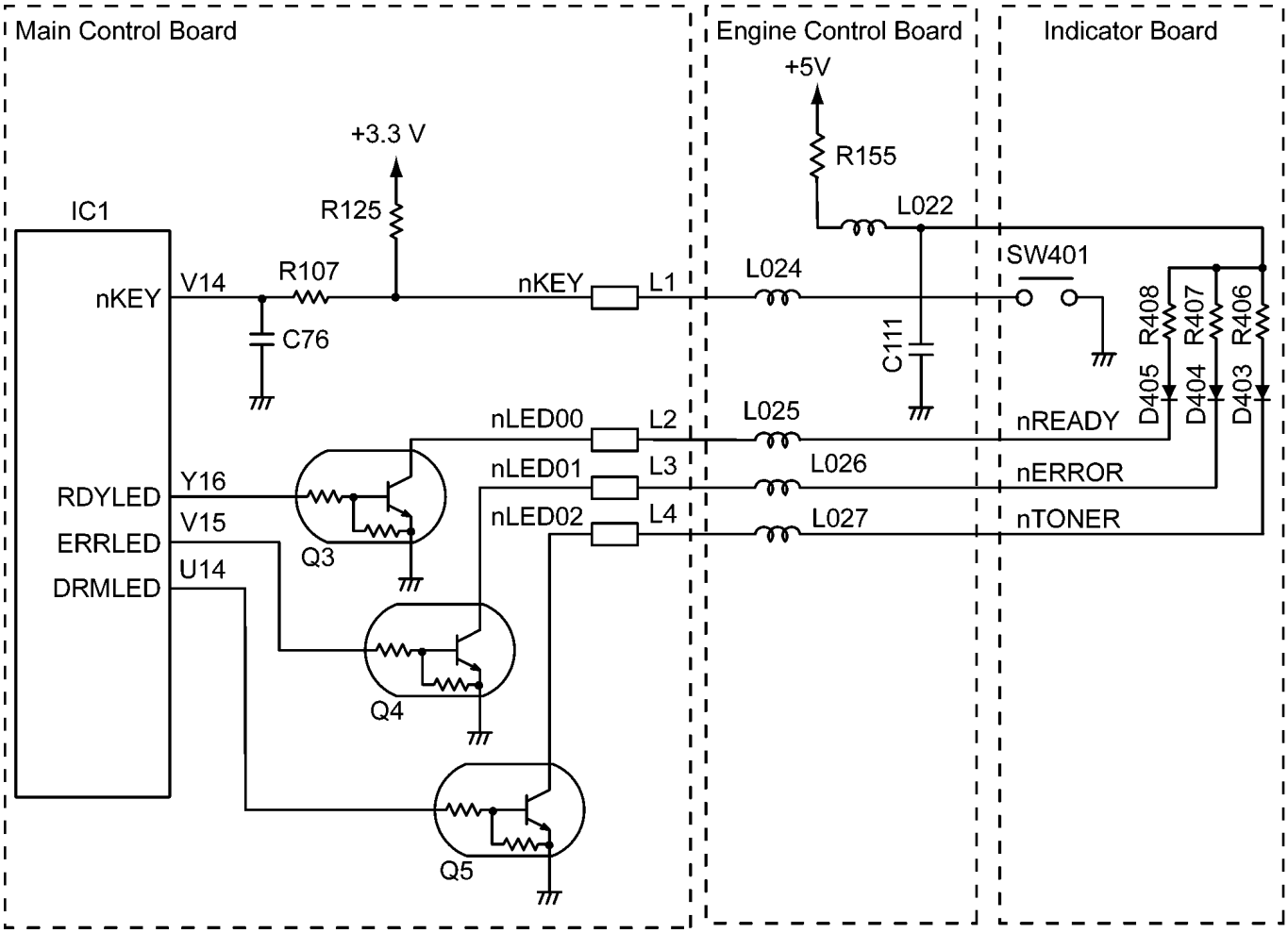
nPRDY:	Engine status is ready for communication.
nTOP:	A vertical synchronous signal which indicates the home position in a recording sheet.
nHSYNC:	A horizontal synchronous signal which indicates the home position of horizontal laser scanning.
nPRINT:	After receiving this signal from main control CPU, the engine starts printing. In other words, print request.
nVIDEO:	Video image data which modulate laser beam.
nPURGE:	Paper purge signal which asserted when the paper exit to the tray.
nPSAVE:	Engine power save command signal.
CXD:	Serial command data from main board to engine board.
SXD:	Serial Status data from engine board to main board.
nCBSY:	Data transfer busy signal from main board to engine board.
nSBSY:	Data transfer busy signal from engine board to main board.
CCLK:	Communication clock for those serial data. (main board assert)





5.5.5.6. Operation Panel Circuit

Panel LEDs and panel switch status are controlled by IC1.



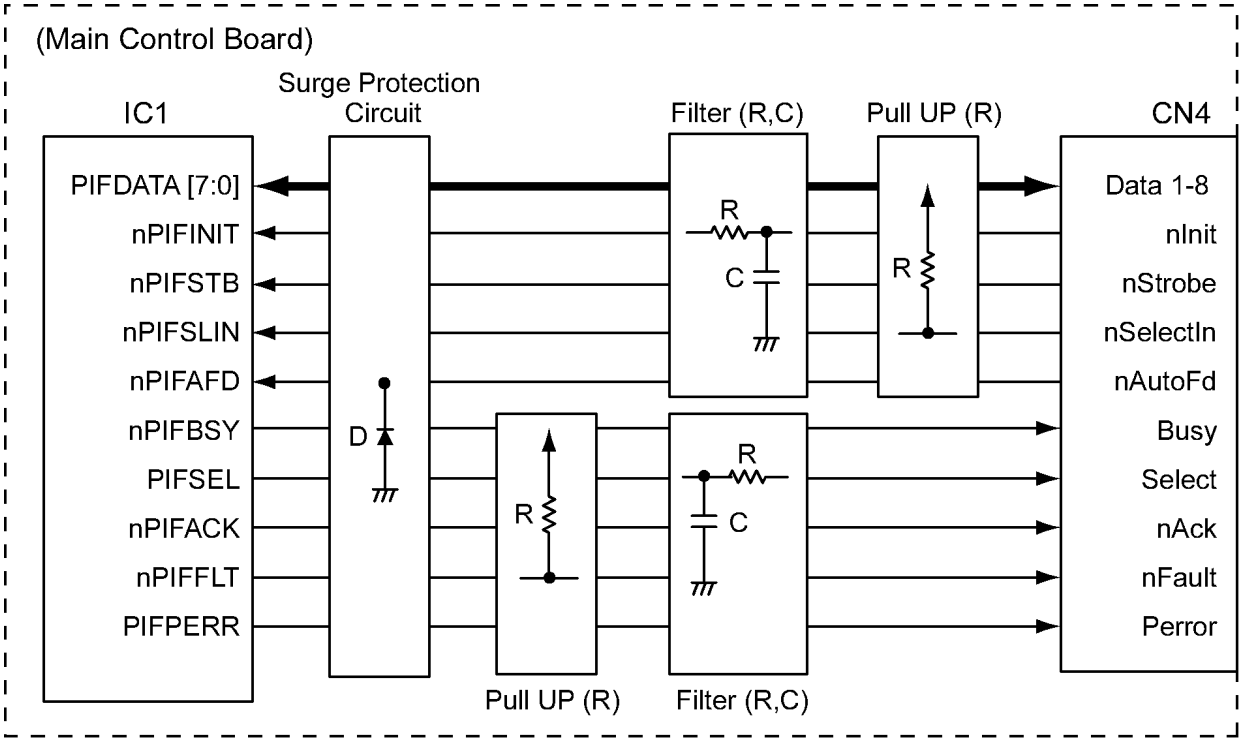
5.5.5.7. Parallel I/F

Data are received and transmitted by the IEEE1284 controller contained in IC1 between the host computer and the IEEE1284 I/F.

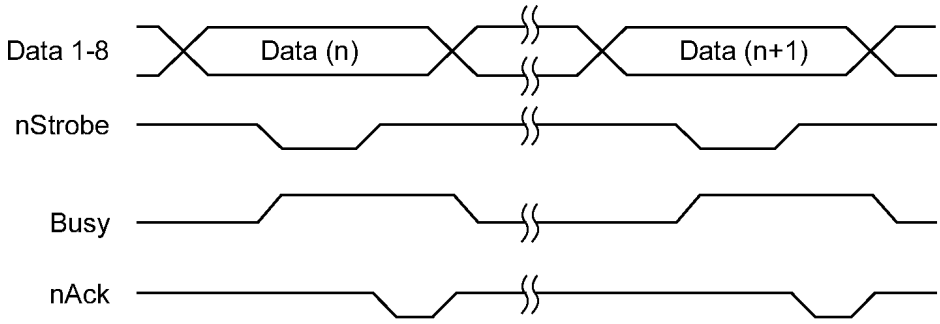
The data and control lines used in conformance to the IEEE1284 standard are connected to the IC1 through the filter composed of a resistor and a capacitor, as shown in the figure below.

A diode for surge protection and a Pull UP resistor are connected to each signal line. The voltage level between the IC1 and the connector is 5V.

The data and the timing of the control lines in the compatible mode are shown as an example of a timing chart below.



Compatible mode Timing Chart

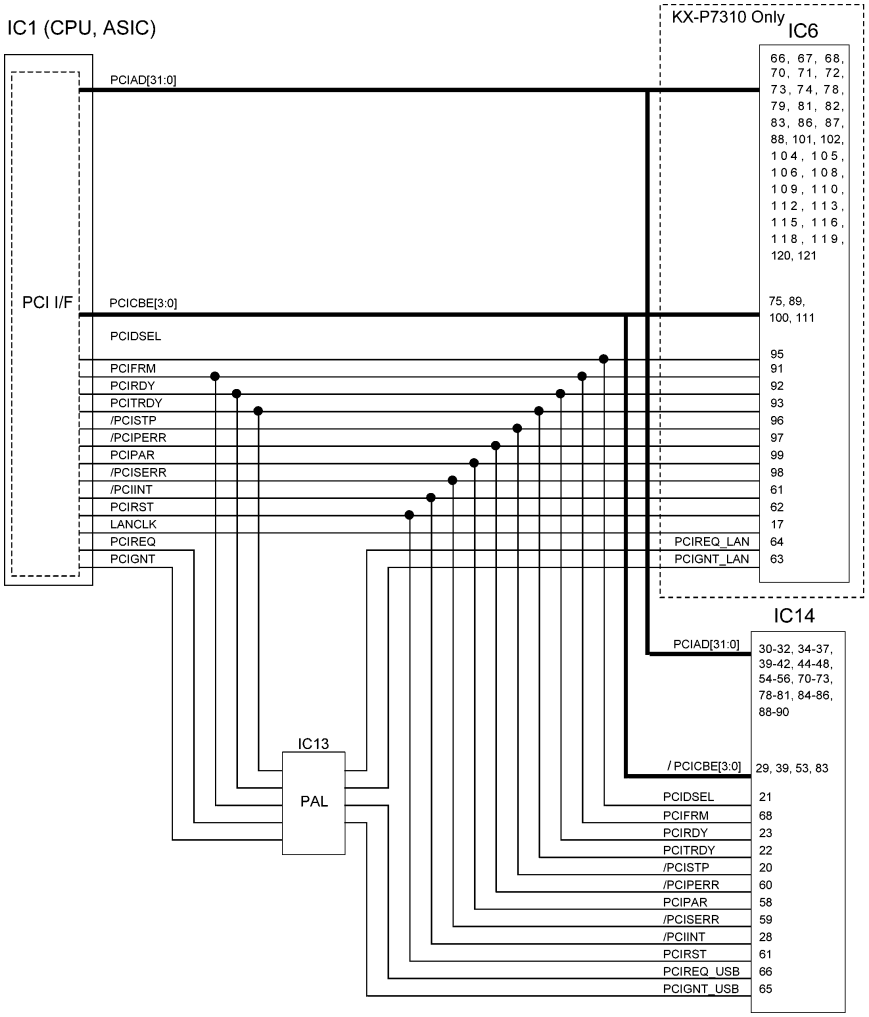


5.5.5.8. PCI I/F

The CPU ASIC (IC1) integrates a PCI Bus interface. The PCI I/F is the basic macro in CPU ASIC (IC1) for controlling the Mac&Phy (IC6) that is a single-chip 10/100 Mb/s and for controlling USB2.0 controller (IC14), via the PCI bus. PAL (IC13) is sub-central arbiter IC, which arbitrates PCI bus accesses.

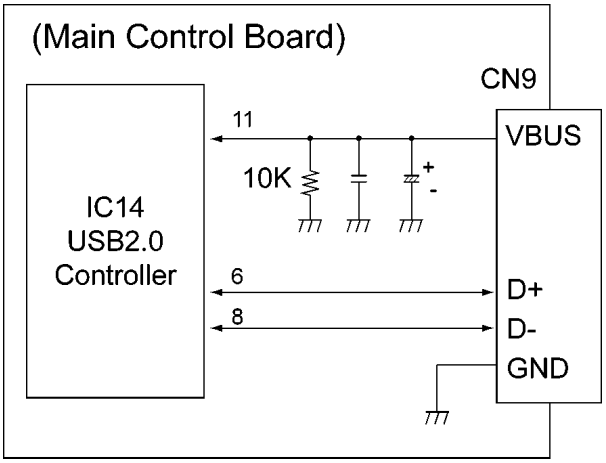
The control signals of the PCI I/F are as follows.

PCIAD [31:0]:	These signals constitute the external Multiplexed address and data PCI bus.
nPCICBE [3:0]:	During the address phase these signals define the “bus command”. During the data phase these pins indicate which byte lanes contain valid data.
PCIREQ:	This signal indicates that the IC6 requests the ownership of the bus to the CPU ASIC (IC1).
PCIGNT:	This signal indicates that the CPU ASIC (IC 1) grants ownership of the bus to the IC6.
PCIFRM:	This signal indicates the beginning and duration of a bus transaction.
PCIDSEL:	This signal is the PCI Bus ID select signal.
PCIRDY:	This signal indicates to be ready to complete the current data phase transaction.
PCITRDY:	This signal indicates to be ready to complete the current data phase transaction.
nPCISTP:	This signal indicates to request to stop the current transaction.
nPCIPERR:	This signal indicates a parity error.
PCIPAR:	This signal indicates even parity across PCIAD[31-0] and nPCICBE[3-0].
nPCISERR:	This signal is asserted low during address parity errors and system errors.
nPCIINT:	This signal is asserted low when an interrupt condition occurs.
PCIRST:	This signal is the PCI Bus Reset signal.
PCICKOUT:	This signal is the PCI Bus clock which provides timing for all bus phases.



5.5.5.9. USB I/F

USB (Universal Serial Bus) I/F is composed of PCI Interface in IC1, IC14 (USB2.0 controller) and CN9. The USB2.0 controller is a USB2.0 compliant device controller that supports High-Speed (480 Mbps) and Full-Speed (12 Mbps). Supported transfer modes are control and bulk transfers. IC14 receives data from host and the controller transfers the data to system memory through the PCI bus.



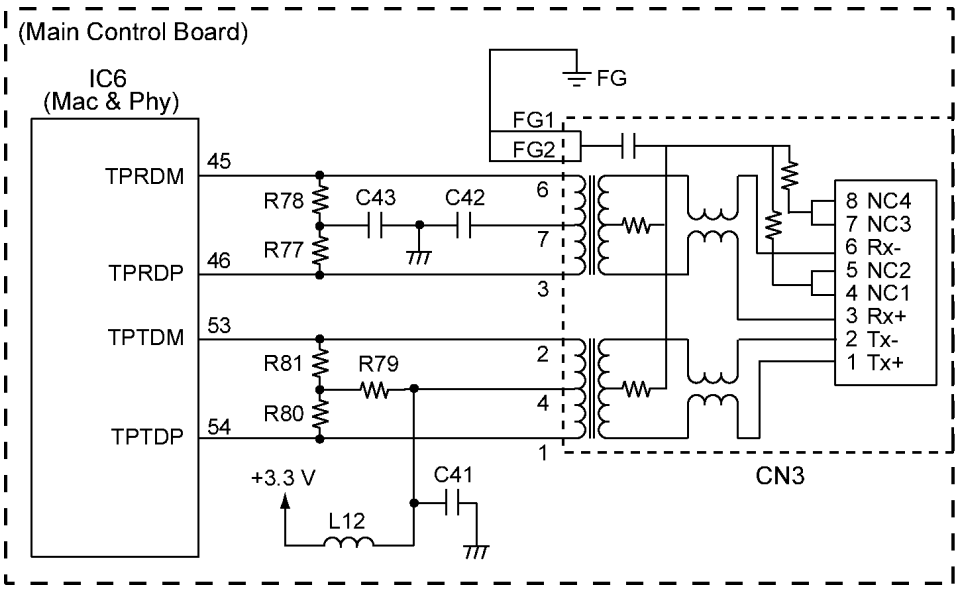
5.5.5.10. Network I/F (only for KX-P7310)

The Network I/F is composed of the Mac&Phy (IC6) that is a single-chip 10/100 Mb/s Ethernet Controller. The Mac&Phy has a full featured physical layer device with integrated PMD (Physical Medium Dependent) sub-layers to support both 10BASE-T and 100BASE-TX Network protocols.

The control signals of the Network I/F are as follows.

TPRDM, TPRDP: Receive Data;
Differential common input buffer. This differential common input can be configured to accept either 100BASE-TX or 10BASE-T signaling.

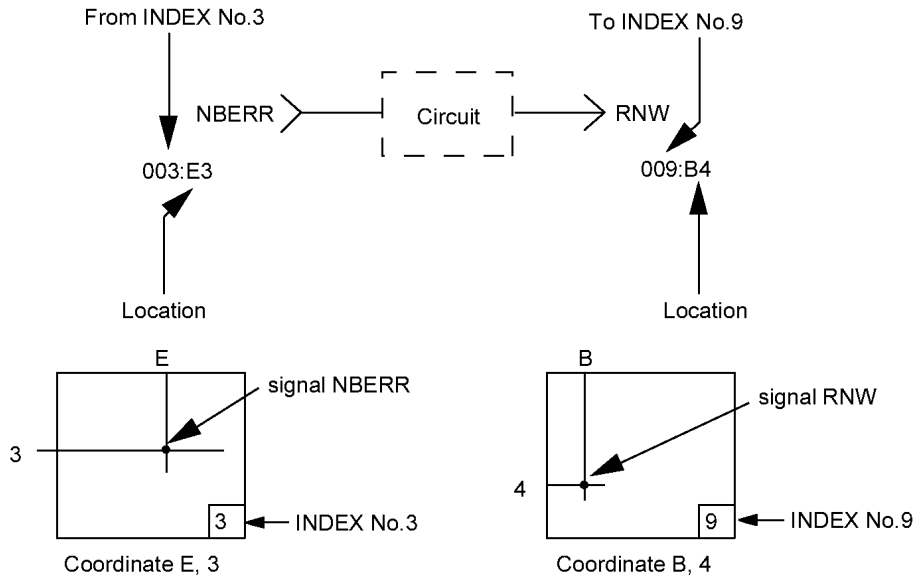
TPTDM, TPTDP: Transmit Data;
Differential common output driver. This differential common output is configurable to either 10BASE-T or 100BASE-TX signaling.



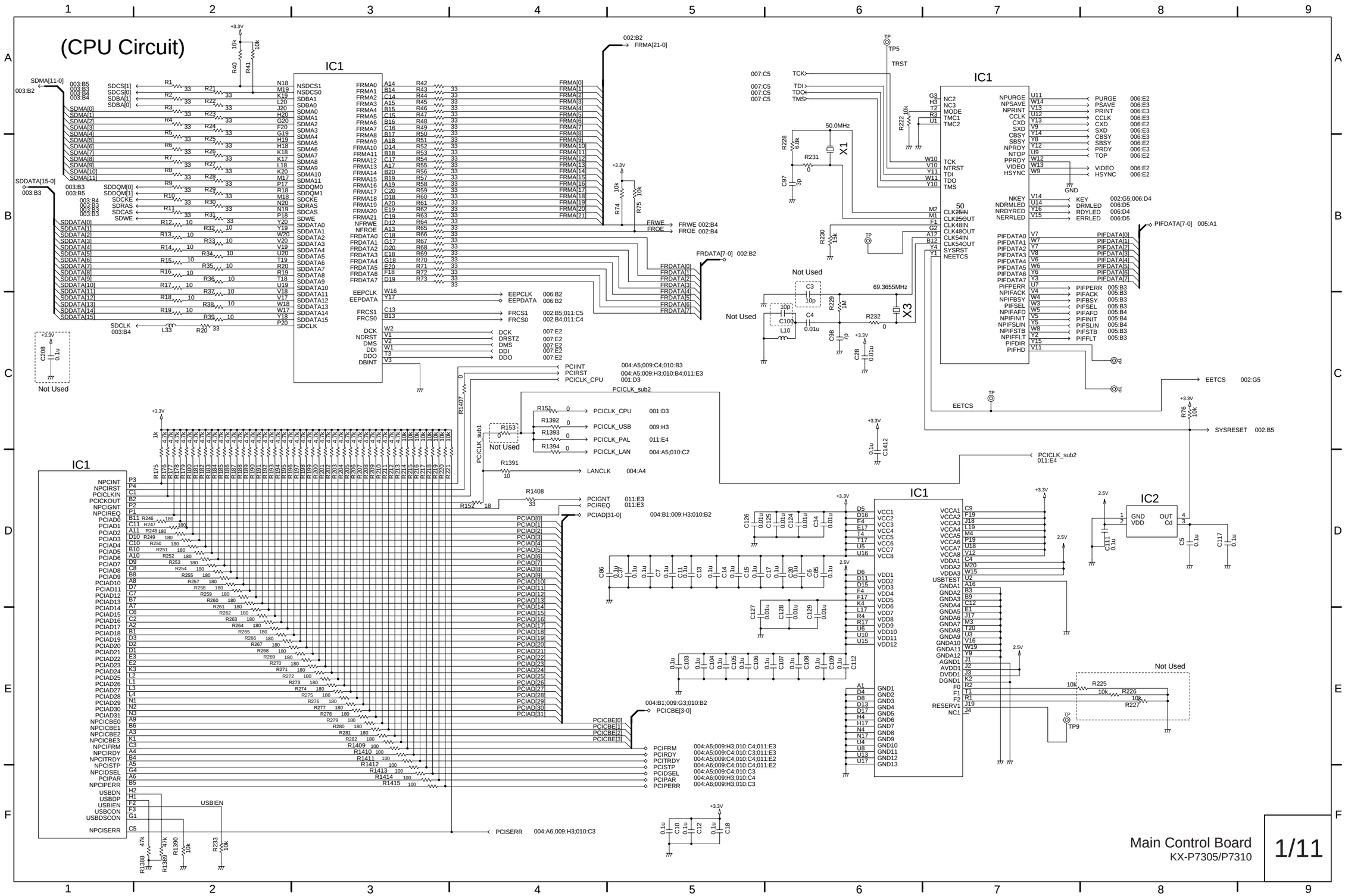
6 Schematic Diagram

Individual circuit diagrams are used in this section for ease of explanation. When a signal or circuit involves more than one diagram, a code number provides easy location of the continued circuit. This number indicates the schematic number and location coordinates, as shown in the following examples:

003:E3=Schematic No.3 Coordinates E3
009:B4=Schematic No.9 Coordinates B4



6.1. Main Control Board



(ROM Block)

32M-FLASH : R234=ON
: R235=OPEN
: R236=ON

FLASH ROM (OR MASK ROM}
IC3

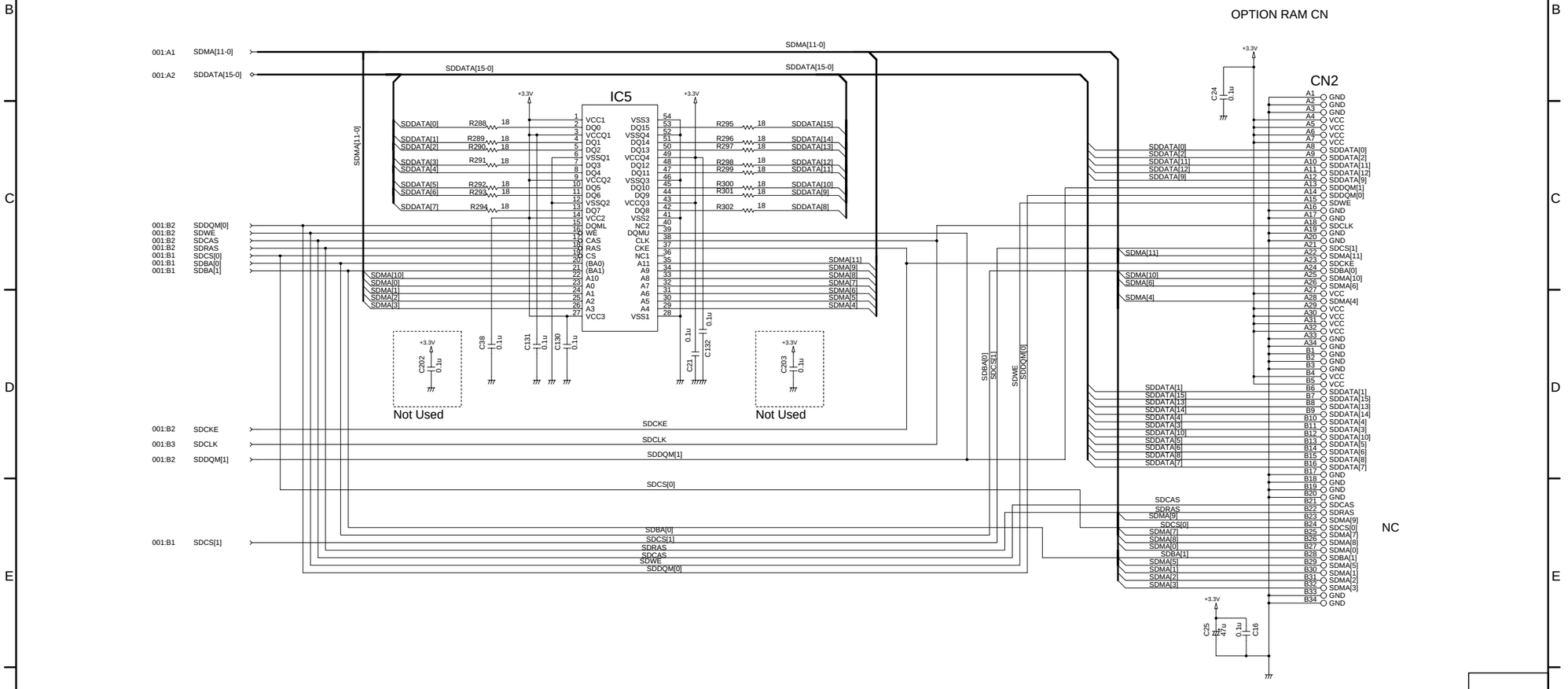
FLASH ROM (8MB)
IC11

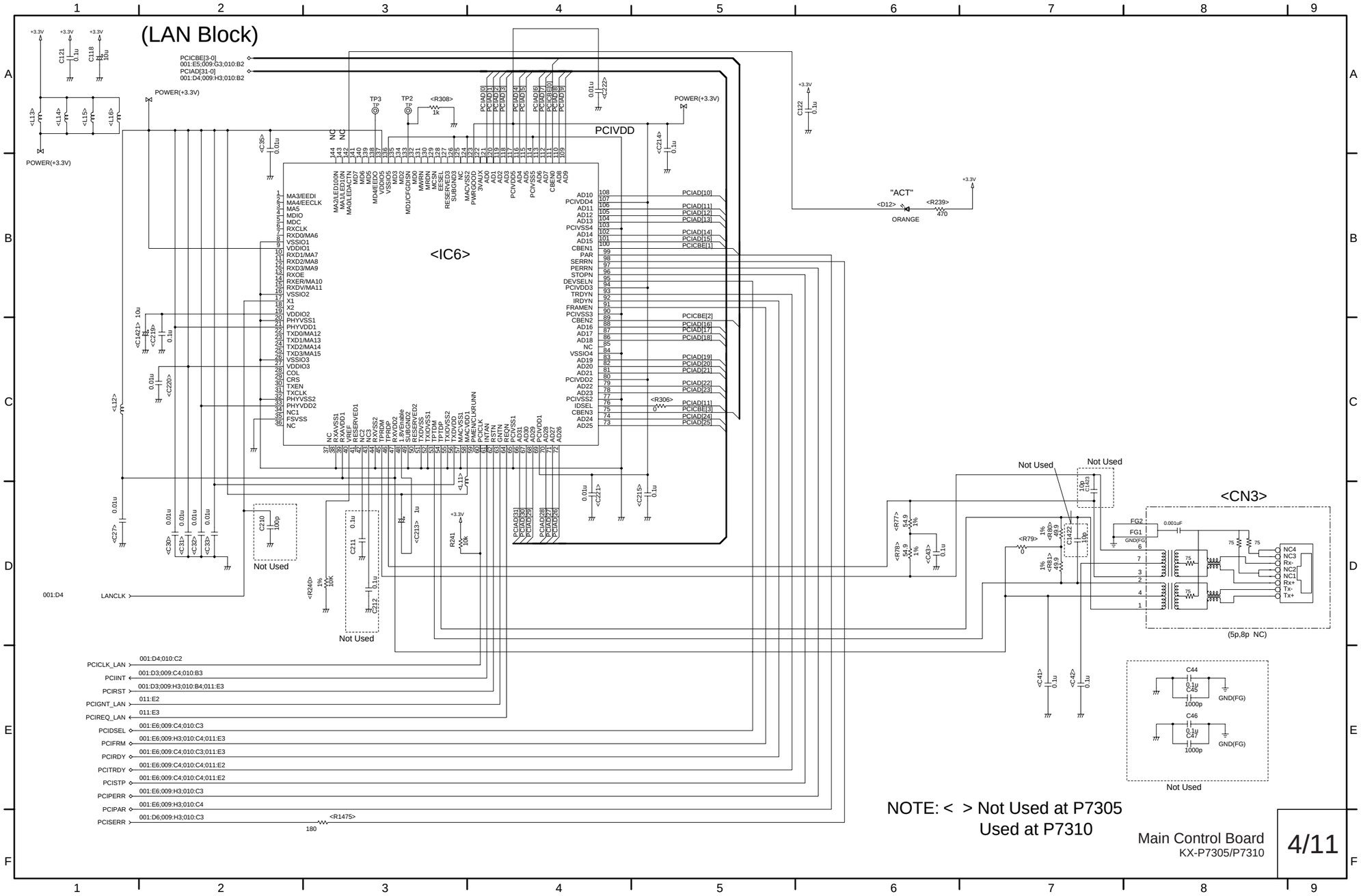
DEBUG SERIAL CN
CN8

Main Control Board
KX-P7305/P7310

2/11

(SDRAM Block)


OPTION RAM CN
IC5
CN2
SDMA[11-0]
SDDATA[15-0]
001:A1 SDMA[11-0]
001:A2 SDDATA[15-0]
001:B2 SDDQM[0]
001:B2 SDWE
001:B2 SDCAS
001:B2 SDRAS
001:B1 SDCS[0]
001:B1 SDBA[0]
001:B1 SDBA[1]
001:B2 SDCKE
001:B3 SDCLK
001:B2 SDDQM[1]
001:B1 SDCS[1]
+3.3V
Not Used
NC
Main Control Board
KX-P7305/P7310
3/11


(LAN Block)
<IC6>
<CN3>
PCICBE[3-0]
001:E5;009:G3;010:B2
PCIAD[31-0]
001:D4;009:H3;010:B2
POWER(+3.3V)
PCIVDD
"ACT"
ORANGE
Not Used
LANCLK
001:D4
PCICLK_LAN
PCIINT
PCIRST
PCIGNT_LAN
PCIREQ_LAN
PCIDSEL
PCIFRM
PCIRDY
PCITRDY
PCISTP
PCIPERR
PCIPAR
PCISERR
001:D4;010:C2
001:D3;009:C4;010:B3
001:D3;009:H3;010:B4;011:E3
011:E2
011:E3
001:E6;009:C4;010:C3
001:E6;009:H3;010:C4;011:E3
001:E6;009:C4;010:C3;011:E3
001:E6;009:C4;010:C4;011:E2
001:E6;009:C4;010:C4;011:E2
001:E6;009:H3;010:C3
001:E6;009:H3;010:C4
001:D6;009:H3;010:C3
NOTE: < > Not Used at P7305
Used at P7310
Main Control Board
KX-P7305/P7310
4/11

(P1284 Block)

001:H2 PIFDATA[7-0]

PIFDATA[0]
PIFDATA[1]
PIFDATA[2]
PIFDATA[3]
PIFDATA[4]
PIFDATA[5]
PIFDATA[6]
PIFDATA[7]

001:G3 PIFSTB
001:G3 PIFACK
001:G3 PIFBSY
001:G3 PIFPERR
001:G3 PIFSEL
001:G3 PIFFLT
001:G3 PIFAFD
001:G3 PIFINIT
001:G3 PIFSLIN

Not Used

POWER<+5VB>
R307 0
C119 0.1u
DA13

R86 33
R87 33
R88 33
R89 33
R90 33
R91 33
R92 33
R93 33

R154 1k
R155 1k
R156 1k
R157 1k
R158 1k
R159 1k
R160 1k
R161 1k

C52 100p
C53 100p
C54 100p
C56 100p
C58 100p
C60 100p
C62 100p
C64 100p

R162 1k
R163 1k
R164 1k
R165 1k
R166 1k
R167 1k
R168 1k
R169 1k
R170 1k

R94 270 nStrobe
R95 33 nAck
R96 33 Busy
R97 33 PError
R98 33 Select
R99 33 nFault
R100 270 nAutoFd
R101 270 nInit
R102 270 nSelectIn

C48 100p
C49 100p
C50 100p
C51 100p

POWER<+5VB>
C120 0.1u

DA1 DA2 DA3 DA4 DA5 DA6 DA7 DA8 DA9

POWER<+5VB>
R103 1
C69 10u
C72 0.1u
C73 0.1u

CN4 (1284B:Full-pitch)

	1	nStrobe
Data[1]	2	Data1
Data[2]	3	Data2
Data[3]	4	Data3
Data[4]	5	Data4
Data[5]	6	Data5
Data[6]	7	Data6
Data[7]	8	Data7
Data[8]	9	Data8
	10	nAck
	11	Busy
	12	PError
	13	Select
	14	nAutoFd
	15	NC
	16	Logic GND
	17	Chassis GND
	18	Peripheral Logic High
	19	Signal GND(nStrobe)
	20	Signal GND(Data1)
	21	Signal GND(Data2)
	22	Signal GND(Data3)
	23	Signal GND(Data4)
	24	Signal GND(Data5)
	25	Signal GND(Data6)
	26	Signal GND(Data7)
	27	Signal GND(Data8)
	28	Signal GND(PError,Select,nACK)
	29	Signal GND(Busy,nFault)
	30	Signal GND(nAutoFd,nSelectIn,nInit)
	31	nInit
	32	nFault
	33	NC
	34	NC
	35	NC
	36	nSelectIn

R104 0
C70 0.1u
R105 0
C71 0.1u
GND(FG)

Not Used

C55 100p
C57 100p
C59 100p
C61 100p
C63 100p
C65 100p
C66 100p
C67 100p
C68 100p

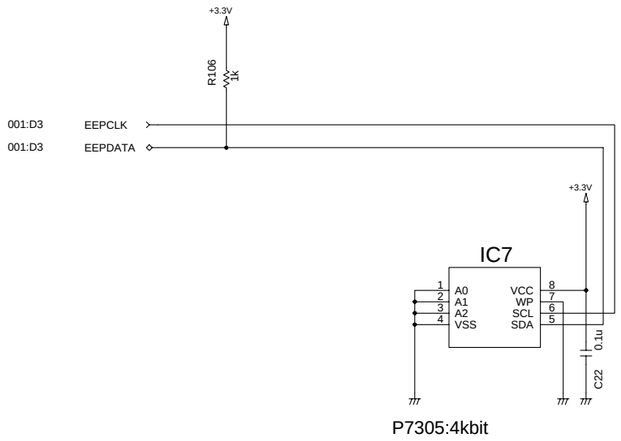
Not Used

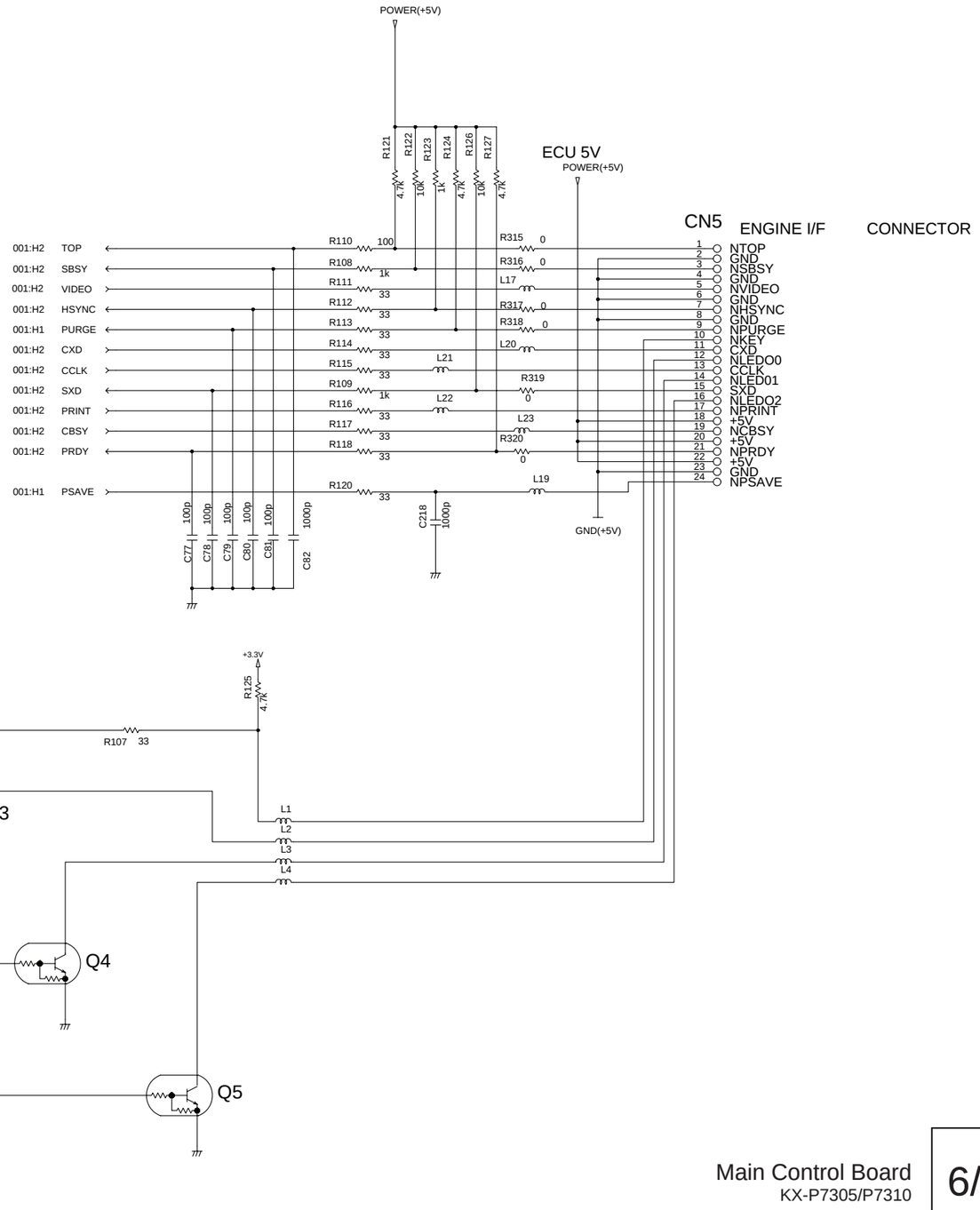
Not Used

Main Control Board
KX-P7305/P7310

5/11

(ENGINE IF/EEPROM/LED IF)

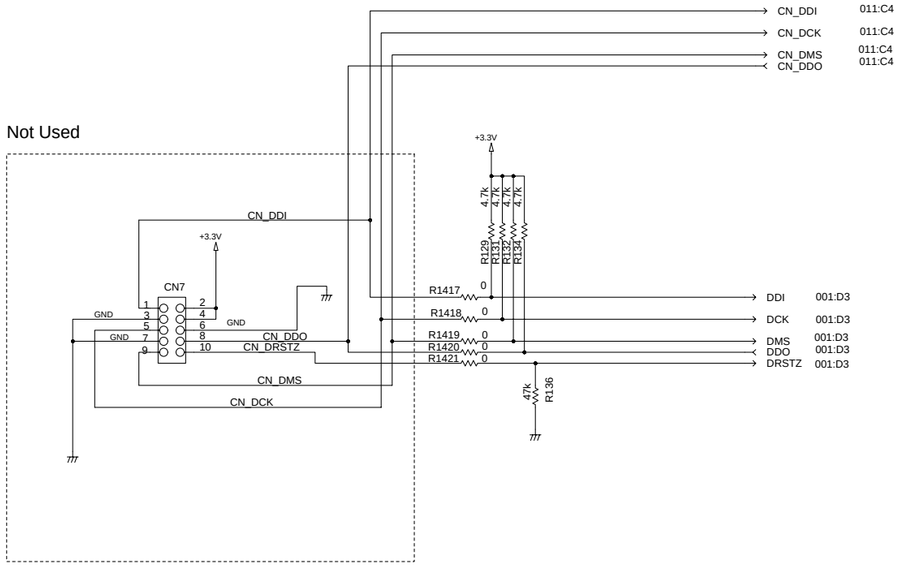




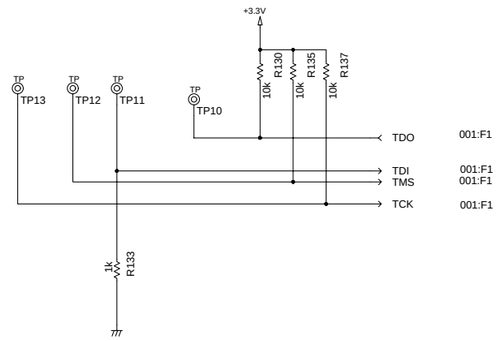
Main Control Board
KX-P7305/P7310

6/11

(CPU ICE&JTAG Block)



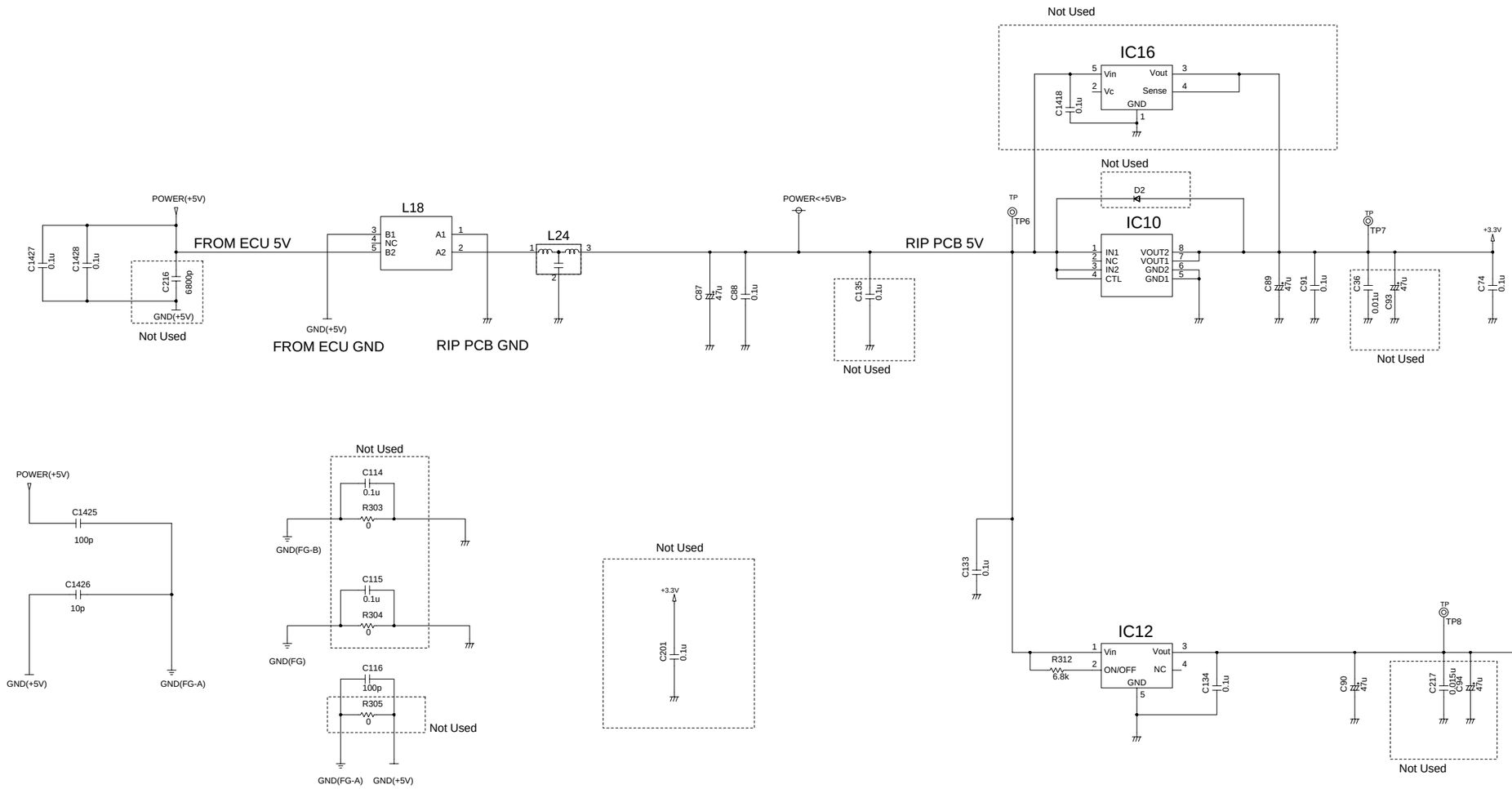
JTAG Block



Main Control Board
KX-P7305/P7310

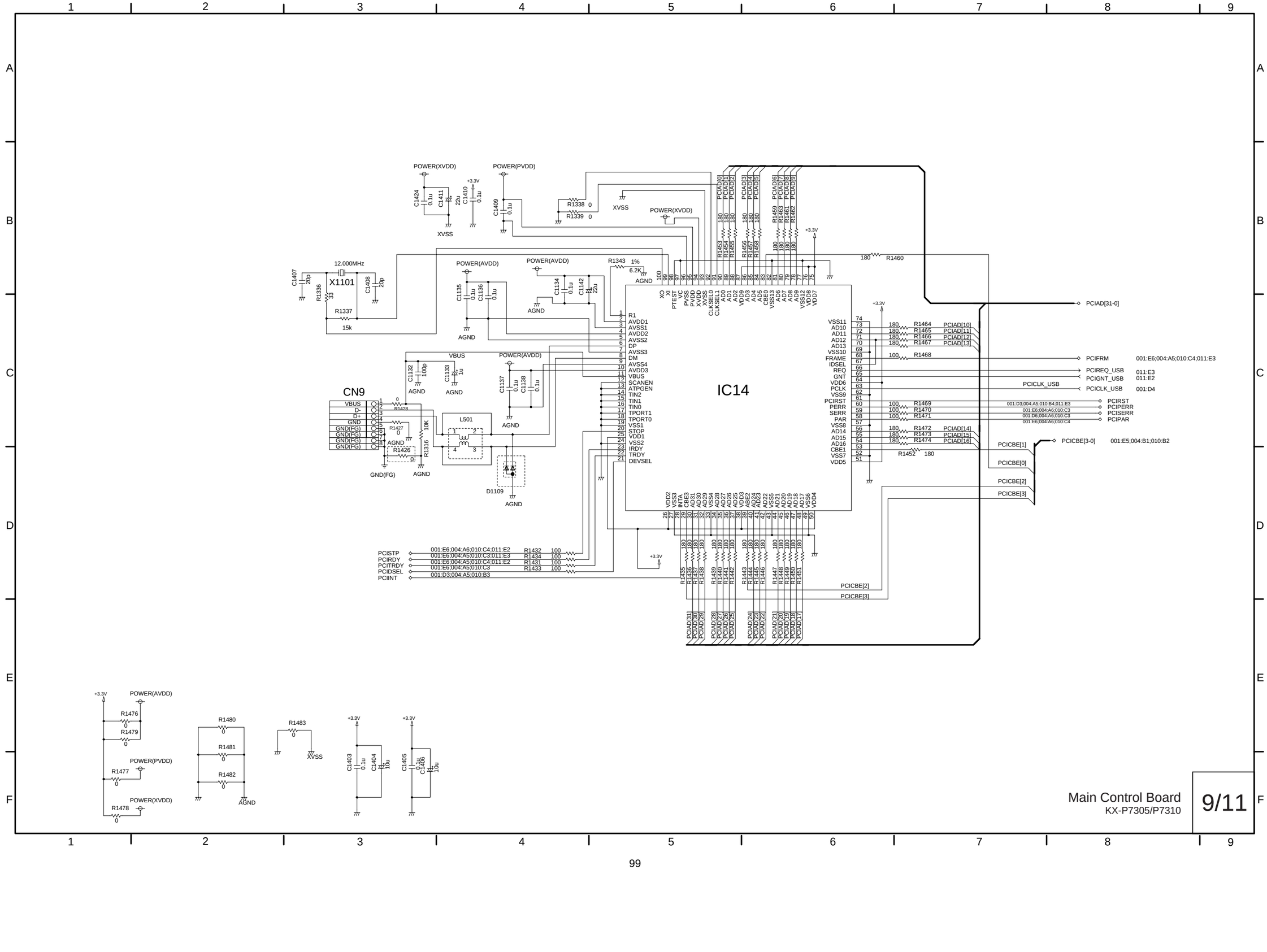
7/11

(Power Regulator Block)



Main Control Board
KX-P7305/P7310

8/11


IC14
CN9
X1101
12.000MHz
L501
D1109
POWER(XVDD)
POWER(PVDD)
POWER(AVDD)
XVSS
AGND
VBUS
GND(FG)
PCIAD[31-0]
PCICBE[3-0]
PCIFRM
PCIREQ_USB
PCIGNT_USB
PCICLK_USB
PCIRST
PCIPERR
PCISERR
PCIPAR
PCIRDY
PCITRDY
PCIDSEL
PCIINT
PCISTP
001:E6;004:A5;010:C4;011:E3
001:E3
001:E2
001:D4
001:D3;004:A5;010:B4;011:E3
001:E6;004:A6;010:C3
001:D6;004:A6;010:C3
001:E6;004:A6;010:C4
001:E5;004:B1;010:B2
001:E6;004:A6;010:C4;011:E2
001:E6;004:A5;010:C3;011:E3
001:E6;004:A5;010:C4;011:E2
001:E6;004:A5;010:C3
001:D3;004:A5;010:B3
Main Control Board
KX-P7305/P7310
9/11

(WLAN I/F)

Not Used

PCIAD[31-0]
PCICBE[3-0]
001:D4;004:B1;009:H3
001:E5;004:B1;009:G3
PCIAD[31-0]
PCICBE[3-0]

001:D4;004:A5
011:E2
PCICLK_LAN
PCIREQ_BB
PCICLK_LAN
PCIREQ_BB

001:E6;004:A5;009:C4;011:E3
001:E6;004:A5;009:C4
PCIRDY
PCIDSEL
PCIRDY
PCIDSEL

001:E6;004:A6;009:H3
001:D6;004:A6;009:H3
PCIPERR
PCISERR
PCIPERR
PCISERR

001:D3;004:A5;009:C4
PCIINT
PCIINT

011:E2
PCIGNT_BB
PCIGNT_BB

001:D3;004:A5;009:H3;011:E3
PCIRST
PCIRST

001:E6;004:A5;009:H3;011:E3
001:E6;004:A5;009:C4;011:E2
001:E6;004:A6;009:C4;011:E2
001:E6;004:A6;009:H3
PCIFRM
PCITRDY
PCISTP
PCIPAR
PCIFRM
PCITRDY
PCISTP
PCIPAR

+3.3V

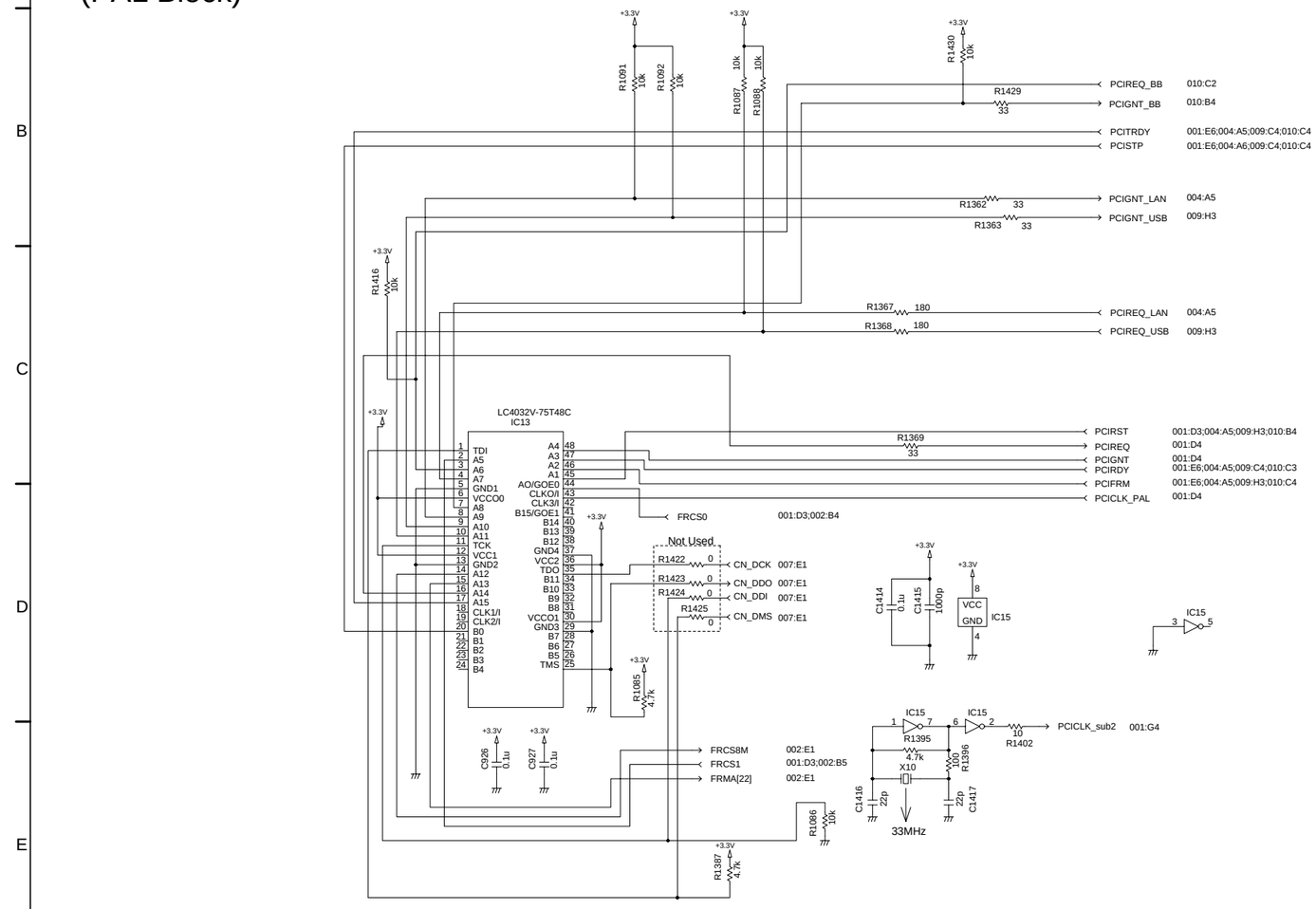
CN1

A1	GND	B1	GND
A2	PCICK	B2	PCIINT
A3	PCIREQ	B3	GND
A4	GND	B4	PCIGNT
A5	PCIAD[31]	B5	PCIRST
A6	PCIAD[29]	B6	PCIAD[30]
A7	+3.3V	B7	PCIAD[28]
A8	PCIAD[27]	B8	PCIAD[26]
A9	PCIAD[25]	B9	+3.3V
A10	PCICBE[3]	B10	PCIAD[24]
A11	PCIAD[23]	B11	PCIAD[22]
A12	PCIAD[21]	B12	PCIAD[20]
A13	GND	B13	PCIAD[18]
A14	PCIAD[19]	B14	PCIAD[16]
A15	PCIAD[17]	B15	GND
A16	PCICBE[2]	B16	PCIFRM
A17	PCIIRDY	B17	PCITRDY
A18	PCIDSEL	B18	PCISTP
A19	+3.3V	B19	PCIPAR
A20	PCIPERR	B20	PCIAD[15]
A21	PCISERR	B21	GND
A22	PCICBE[1]	B22	PCIAD[13]
A23	PCIAD[12]	B23	PCIAD[11]
A24	PCIAD[14]	B24	PCIAD[9]
A25	GND	B25	PCICBE[0]
A26	PCIAD[10]	B26	PCIAD[6]
A27	PCIAD[8]	B27	GND
A28	PCIAD[7]	B28	PCIAD[4]
A29	PCIAD[5]	B29	PCIAD[2]
A30	PCIAD[3]	B30	PCIAD[0]
A31	GND	B31	PCIAD[1]
A32	+3.3V	B32	GND
A33	+3.3V	B33	+3.3V
A34	GND	B34	GND

Main Control Board
KX-P7305/P7310

10/11

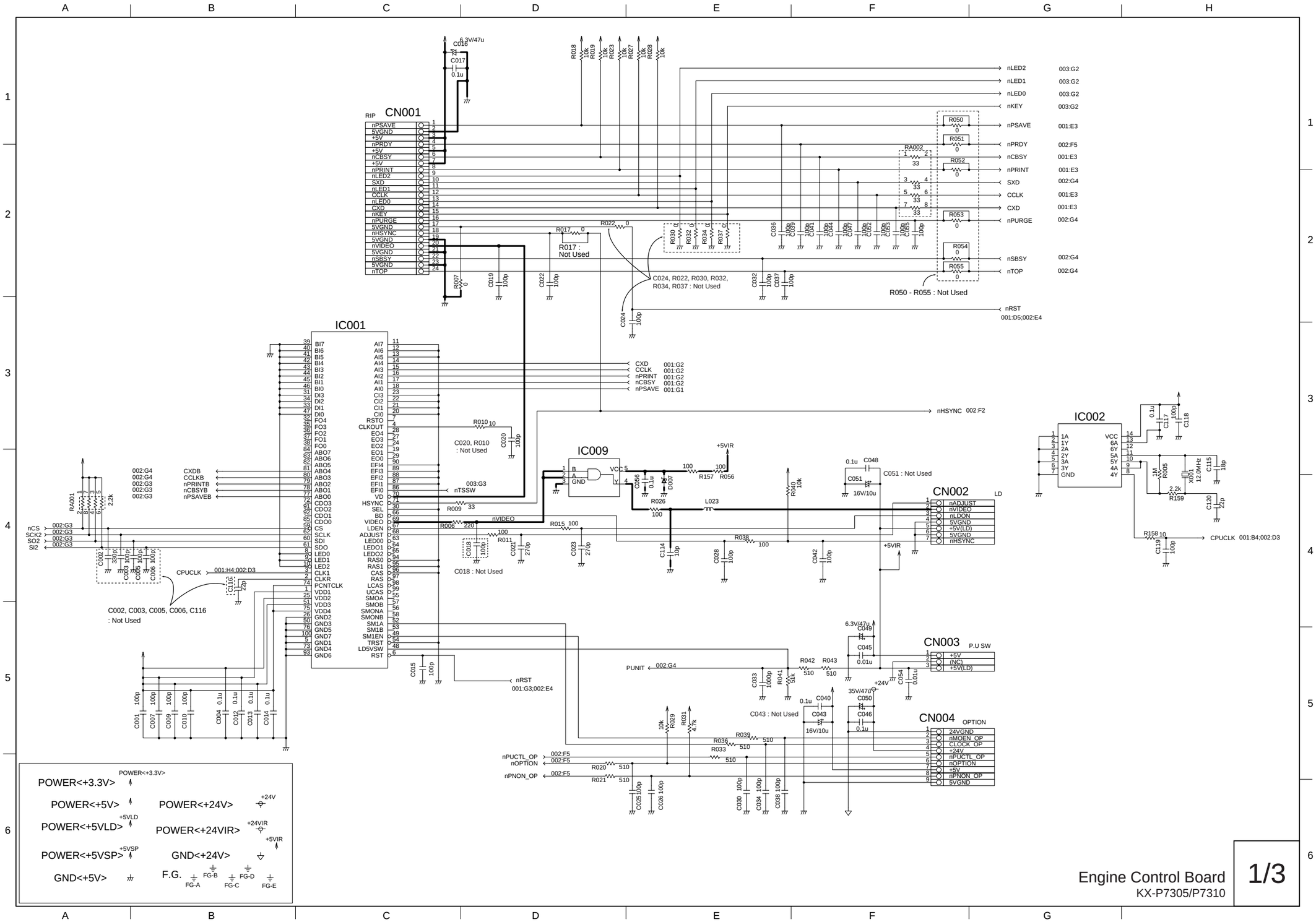
(PAL Block)



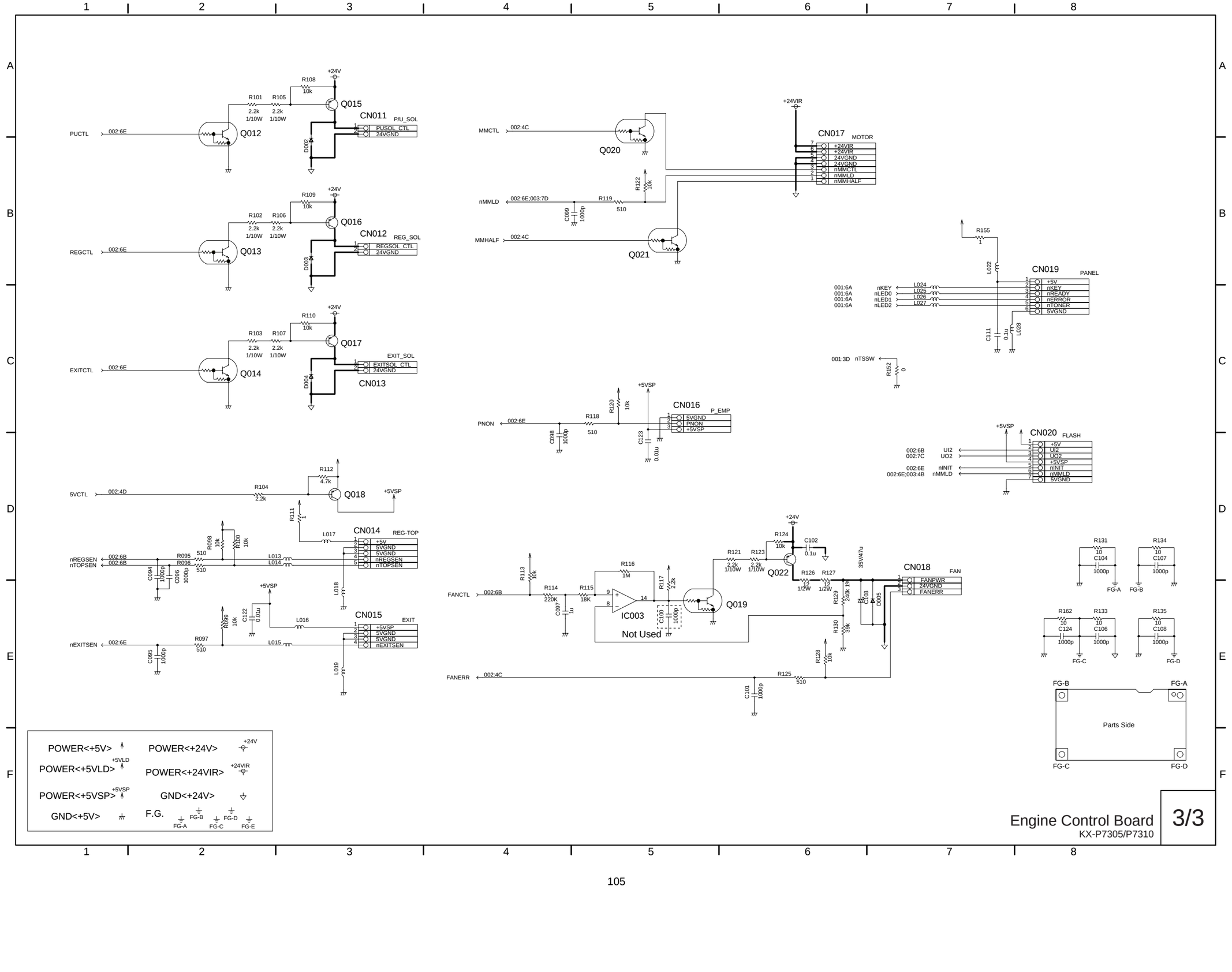
Main Control Board
KX-P7305/P7310

11/11

6.2. Engine Control Board



CN005
PSU
+24V
+24V
24VGND
24VGND
+5V
5VGND
nFCTL
C063 : Not Used
C071 : Not Used
R058
0
Not Used
Q003
R071 1k
R072 1k
R067 2.2k
R068 2.2k
Q009
IC003
R075 10k
R076 10k
C078 0.1u
R081 10k
nFSRCTL
CN006
DOOR
+24V
24VGND
+24VIR
C061 0.01u
C058 0.01u
R061 51k
R062 10k
R063 1k
R065 2.2k
R066 2.2k
R077 10k
nDOPEN
R161 3k 1%
R160 3k 1%
THERMISTOR
CN007
TH
+5V
TH
L004
L005
R064 390K 1%
C074 100p
R073 1k
C069 0.1u
C075 100p
R070 18K 1%
C076 1000p
C077 1000p
CN008
HVU
TECTL
+5V
nTR
nTRCTL
nDB
nDBCH
nCHGCTL
24VGND
24VGND
+24VIR
L003
L006
L007
L008
L009
L010
L011
L002
C057 100p
C059 100p
C060 100p
C062 100p
C064 100p
C065 100p
C066 100p
L012
C073 100p
Q004
R069 1/2W 18
D001
Q008
002:F2 nTECTL
R074 220
Q007
Q006
Q002
Q005
Q001
+5VSP
4.7k
R078 4.7k
R079 4.7k
R080 4.7k
002:F2 TRCTL
002:F2 DBCH
002:F2 CHGCTL
002:G3 TRPWM
002:G4 DBPWM
IC005
GND
VDD
OUT
Cd
C079 0.1u
C081 50V/0.47u
C083 0.1u
R084 4.7k
nRST
001:D5;001:G3
CN009
TE_R
5VGND
TE_ROUT
R059 470k
R060 510
1000p C070
002:F2 TESEN
IC007
VCC
NC
TEST
GND
CS
SK
DI
DO
C087 0.1u
002:D4 EEPCS
002:D4 EEPCLK
002:D3 EEPDO
002:F5 EEPDI
R093 51k
R094 10k
IC006
FANERR 003:D5
CPUCLK 001:B4;001:H4
MMCTL 003:D1
MMHALF 003:D2
EEPDO 002:H2
EEPCLK 002:H2
EEPCS 002:H2
SNRCLK 002:G5
5VCTL 003:A4
nTOPSEN
nREGSEN
nHSYNC
TRCTL
DBCH
CHGCTL
nTECTL
nFANCTL
nPRCTL
TESEN
UI2
C085 6.3V/47u
C086 0.1u
UO2 003:G4
nCS 001:A4
SI2 001:A4
SO2 001:A4
SCK2 001:A4
nPSAVEB 001:B4
TRPWM 002:D5
nCBSYB 001:B4
nPRINTB 001:B4
DBPWM 002:D5
CXDB 001:B4
SXD 001:G2
CCLKB 001:B4
PUNIT 001:E5
R086 33
Not Used
C084 0.1u
R087 33
R088 33
R089 33
nTOP 001:G2
nSBSY 001:G2
nPURGE 001:G2
R085 33
EEPDI 002:H2
nMMLD 003:D3
PNON 003:D4
nSNRLD 001:D5
nPRINTON 001:D5
nOPTION 001:D5
nINIT 003:A4
nEXTISEN 003:A5
PRCTL 003:A1
REGCTL 003:A2
EXITCTL 001:G1
nPRDY 001:G1
nPLOTT_OK 001:D5
Not Used
C091 35V/47u
C092 0.1u
CN010 POLYGON
+24V
24VGND
nSNRCTL
nSNRLD
nSNRCLK
R091 10k
nSNRLD 002:F5
R090 510
C088 1000p
+5VSP
R092 4.7k
C089 100p
C090 100p
SNRCTL 002:F2
C121 0.01u
Q010
SNRCLK 002:D4
Q011
C093 100p
POWER<+5V>
POWER<+5VLD>
POWER<+5VSP>
GND<+5V>
POWER<+24V>
POWER<+24VIR>
GND<+24V>
FG
FG-A
FG-B
FG-C
FG-D
FG-E
Engine Control Board
KX-P7305/P7310
2/3

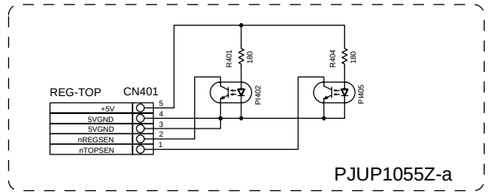


Engine Control Board
KX-P7305/P7310

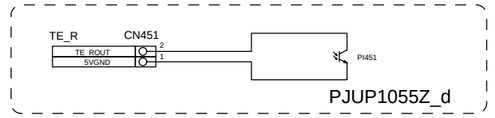
3/3

6.3. Sensors, Indicator and Relay Boards

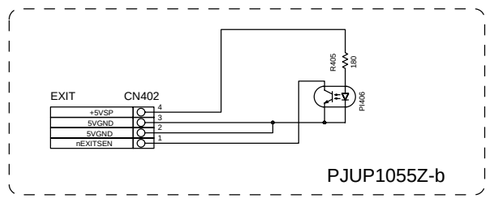
JAM SENSOR(REGISTRATION,TOP)



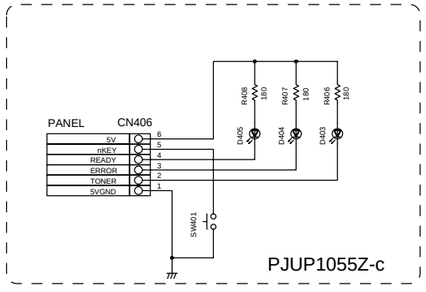
TONER EMPTY SENSOR(R)



JAM SENSOR(EXIT)



INDICATOR



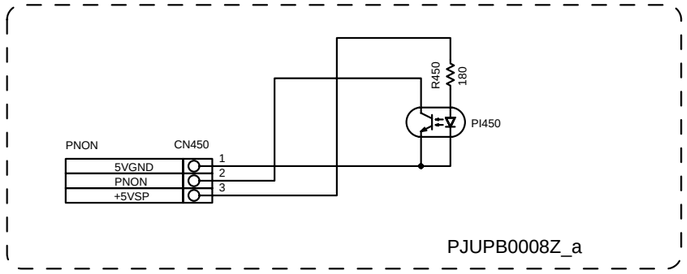
(Sensors, Indicator and Relay Boards)

KX-P7305/KX-P7310

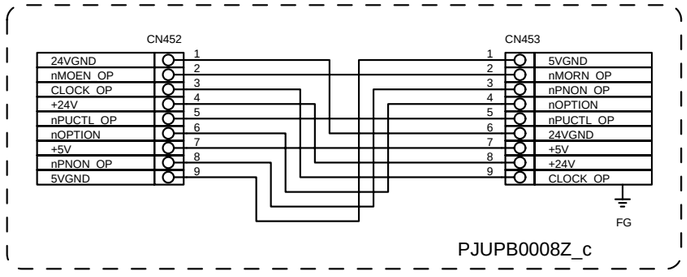
1/1

6.4. Paper Empty Sensor Board and 2nd Feeder I/F Board

Paper Empty Sensor Board



2nd Feeder I/F Board



(Paper Empty Sensor Board, 2nd Feeder I/F Board)

KX-P7305/KX-P7310

1/1

7 Explanation of Connectors

7.1. Main Control Board

7.1.1. CN2 (Optional RAM Connector)

CN2 (Optional RAM Connector)

Pin No.	Signal Name	Description	Direction
A1	GND	Ground	---
A2	GND	Ground	---
A3	GND	Ground	---
A4	VCC	+3.3V	---
A5	VCC	+3.3V	---
A6	VCC	+3.3V	---
A7	VCC	+3.3V	---
A8	SDDATA[0]	SDRAM Data 0	IN/OUT
A9	SDDATA[2]	SDRAM Data 2	IN/OUT
A10	SDDATA[11]	SDRAM Data 11	IN/OUT
A11	SDDATA[12]	SDRAM Data 12	IN/OUT
A12	SDDATA[9]	SDRAM Data 9	IN/OUT
A13	SDDQM[1]	SDRAM Data Mask 1	IN/OUT
A14	SDDQM[0]	SDRAM Data Mask 0	IN/OUT
A15	SDWE	SDRAM Write Enable	OUT
A16	GND	Ground	---
A17	GND	Ground	---
A18	SDCLK	SDRAM Clock	OUT
A19	GND	Ground	---
A20	GND	Ground	---
A21	nSDCS[1]	SDRAM Chip Select 1	OUT
A22	SDMA[11]	SDRAM Address 11	OUT
A23	SDCKE	SDRAM Clock Enable	OUT
A24	SDBA[0]	SDRAM Bank Address 0	OUT
A25	SDMA[10]	SDRAM Address 10	OUT
A26	SDMA[6]	SDRAM Address 6	OUT
A27	VCC	+3.3V	---
A28	SDMA[4]	SDRAM Address 4	OUT
A29	VCC	+3.3V	---
A30	VCC	+3.3V	---
A31	VCC	+3.3V	---
A32	VCC	+3.3V	---
A33	GND	Ground	---
A34	GND	Ground	---
B1	GND	Ground	---
B2	GND	Ground	---
B3	GND	Ground	---
B4	VCC	+3.3V	---
B5	VCC	+3.3V	---
B6	SDDATA[1]	SDRAM Data 1	IN/OUT
B7	SDDATA[15]	SDRAM Data 15	IN/OUT
B8	SDDATA[13]	SDRAM Data 13	IN/OUT
B9	SDDATA[14]	SDRAM Data 14	IN/OUT
B10	SDDATA[4]	SDRAM Data 4	IN/OUT

CN2

Pin No.	Signal Name	Description	Direction
B11	SDDATA[3]	SDRAM Data 3	IN/OUT
B12	SDDATA[10]	SDRAM Data 10	IN/OUT
B13	SDDATA[5]	SDRAM Data 5	IN/OUT
B14	SDDATA[6]	SDRAM Data 6	IN/OUT
B15	SDDATA[8]	SDRAM Data 8	IN/OUT
B16	SDDATA[7]	SDRAM Data 7	IN/OUT
B17	GND	Ground	---
B18	GND	Ground	---
B19	GND	Ground	---
B20	GND	Ground	---
B21	SDCAS	SDRAM Column Address Strobe	OUT
B22	SDRAS	SDRAM Raw Address Strobe	OUT
B23	SDMA[9]	SDRAM Address 9	OUT
B24	nSDCS[0]	N.C.	OUT
B25	SDMA[7]	SDRAM Address 7	OUT
B26	SDMA[8]	SDRAM Address 8	OUT
B27	SDMA[0]	SDRAM Address 0	OUT
B28	SDBA[1]	SDRAM Bank Address 1	OUT
B29	SDMA[1]	SDRAM Address 1	OUT
B30	SDMA[5]	SDRAM Address 5	OUT
B31	SDMA[3]	SDRAM Address 3	OUT
B32	SDMA[2]	SDRAM Address 2	OUT
B33	GND	Ground	---
B34	GND	Ground	---

7.1.2. CN3 (Network Connector: KX-P7310 only)

CN3 (Network Connector)

Pin No.	Signal Name	Description	Direction
1	Tx+	Transmit Differential Data+	OUT
2	Tx-	Transmit Differential Data-	OUT
3	Rx+	Receive Differential Data+	IN
4	FG	Frame Ground	---
5	NC	N.C.	---
6	Rx-	Transmit Differential Data-	IN
7	FG	Frame Ground	---
8	NC	N.C.	---

7.1.3. CN4 (IEEE 1284 I/F Connector)

CN4 (IEEE 1284 I/F Connector)

Pin No.	Signal Name	Description	Direction
1	nStrobe	Strobe	IN
2	Data 1	Data 1	IN / OUT
3	Data 2	Data 2	IN / OUT
4	Data 3	Data 3	IN / OUT
5	Data 4	Data 4	IN / OUT
6	Data 5	Data 5	IN / OUT
7	Data 6	Data 6	IN / OUT
8	Data 7	Data 7	IN / OUT
9	Data 8	Data 8	IN / OUT
10	nAck	Acknowledge	OUT
11	Busy	Busy	OUT
12	PError	Paper Error	OUT
13	Select	Select	OUT
14	nAutoFd	Autofeed	IN
15	NC	N.C.	---
16	Logic GND	Signal Ground	---
17	Chassis GND	Frame Ground	---
18	Peripheral Logic High	+5V	---
19	Signal GND	Signal Ground	---
20	Signal GND	Signal Ground	---
21	Signal GND	Signal Ground	---
22	Signal GND	Signal Ground	---
23	Signal GND	Signal Ground	---
24	Signal GND	Signal Ground	---
25	Signal GND	Signal Ground	---
26	Signal GND	Signal Ground	---
27	Signal GND	Signal Ground	---
28	Signal GND	Signal Ground	---
29	Signal GND	Signal Ground	---
30	Signal GND	Signal Ground	---
31	nInit	Initiative	IN
32	nFault	Fault	OUT
33	NC	N.C.	---
34	NC	N.C.	---
35	NC	N.C.	---
36	nSelect In	Select In	IN

7.1.4. CN5 (Engine I/F Connector)

CN5 (Engine I/F Connector)

Pin No.	Signal Name	Description	Direction
1	nTOP	Paper Top	IN
2	GND	Ground	---
3	nSBSY	Status Busy	IN
4	GND	Ground	---
5	nVIDEO	Video Data	OUT
6	GND	Ground	---
7	nHSYNC	Horizontal Synchronization	IN
8	GND	Ground	---
9	nPURGE	Paper Purge	IN
10	nKEY	Key Input	IN
11	CXD	Command Serial Data	OUT
12	nLEDO0	Ready LED (Green)	OUT
13	CCLK	Serial I/F Clock	OUT
14	nLEDO1	ERROR LED (Red)	OUT
15	SXD	Status Serial Data	IN
16	nLEDO2	TONER LED (Yellow)	OUT
17	nPRINT	Print Start	OUT
18	+5V	+5V	---
19	nCBSY	Command Busy	OUT
20	+5V	+5V	---
21	nPRDY	Printer Ready	IN
22	+5V	+5V	---
23	GND	Ground	IN
24	nPSAVE	Power Save	OUT

7.1.5. CN9 (USB I/F Connector)

CN9 (USB I/F Connector)

Pin No.	Signal Name	Description	Direction
1	VBUS	USB VBUS	IN
2	D-	USB Differential Data-	IN/OUT
3	D+	USB Differential Data+	IN/OUT
4	GND	Ground	---
5	FG	Frame Ground	---
6	FG	Frame Ground	---
7	FG	Frame Ground	---
8	FG	Frame Ground	---

7.2. Engine Control Board

7.2.1. CN001 (Video Interface)

CN001 (Video Interface)

Pin No.	Signal Name	Description	Direction
1	nPSAVE	Power Save	IN
2	5VGND	Ground	---
3	+5V	+5V	---
4	nPRDY	Printer Ready	OUT
5	+5V	+5V	---
6	nCBSY	Command Busy	IN
7	+5V	+5V	---
8	nPRINT	Print Start	IN
9	nLED02	Toner LED (Yellow)	IN
10	SXD	Status Serial Data	OUT
11	nLED01	Error LED (RED)	IN
12	CCLK	Serial I/F Clock	IN/OUT
13	nLED00	Ready LED (Green)	IN
14	CXD	Command Serial Data	IN
15	nKEY	Key Input	OUT
16	nPURGE	Paper Purge	OUT
17	5VGND	GND	---
18	nHSYNC	Horizontal Synchronization	OUT
19	5VGND	GND	---
20	nVIDEO	Video Data	IN
21	5VGND	GND	---
22	nSBSY	Status Busy	OUT
23	5VGND	GND	---
24	nTOP	Paper Top	OUT

7.2.2. CN002 (LSU Control Signals)

CN002 (LSU Control Signals)

Pin No.	Signal Name	Description	Direction
1	nADJUST	LSU APC timing	OUT
2	nVIDEO	Video Signal	OUT
3	nLDON	LD Light Enable	OUT
4	5VGND	---	---
5	+5V (LD)	+5V thru OPC Drum Unit Interlock SW	OUT
6	5VGND	---	---
7	nHSYNC	Horizontal Sync Signal (BD)	IN

7.2.3. CN003 (OPC Drum Unit Interlock SW)

CN003 (OPC Drum Unit Interlock Switch)

Pin No.	Signal Name	Description	Direction
1	+5V	+5V	OUT
2	5VGND	---	---
3	+5V (LD)	+5V thru OPC Drum Unit Interlock SW	IN

7.2.4. CN004 (2nd Feeder)

CN004 (2nd Feeder)

Pin No.	Signal Name	Description	Direction
1	24VGND	---	---
2	nMOEN_OP	2nd Feeder Motor Control	OUT
3	CLOCK_OP	CLOCK	OUT
4	+24V	+24V	OUT
5	nPUCTL_OP	2nd Feeder Paper Pickup Control	OUT
6	nOPTION	2nd Feeder Detection	IN
7	+5V	+5V	OUT
8	nPNON_OP	2nd Feeder Paper Empty	IN
9	5VGND	---	---

7.2.5. CN005 (PSU-MAIN Connector)

CN005 (PSU-MAIN Connector)

Pin No.	Signal Name	Description	Direction
1	nFCTL	Fuser ON/OFF Control	OUT
2	5VGND	GND	---
3	+5V	+5V Power Source (PSU)	IN
4	24VGND	GND	---
5	24VGND	GND	---
6	+24V	+24V Power Source (PSU)	IN
7	+24V	+24V Power Source (PSU)	IN

7.2.6. CN006 (Door +24V Interlock SW)

CN006 (Door +24V Interlock SW)

Pin No.	Signal Name	Description	Direction
1	+24V	+24V Power Source	OUT
2	24VGND	GND	---
3	24VIR	24V through Door Interlock SW	IN

7.2.7. CN007 (THERMISTOR)

CN007 (Thermistor)

Pin No.	Signal Name	Description	Direction
1	+5V	---	OUT
2	TH	Thermistor	IN

7.2.8. CN008 (HVU-MAIN Connector)

CN008 (HVU-MAIN Connector)

Pin No.	Signal Name	Description	Direction
1	+24VIR	---	OUT
2	24VGND	---	---
3	24VGND	---	---
4	nCHGCTL	Charge Control (on/off)	OUT
5	nDBCH	Developer Charge (+/- change)	OUT
6	nDB	Developer (+ voltage PWM Pulse)	OUT
7	nTRCTL	Transfer Control(+/- change)	OUT
8	nTR	Transfer (- voltage PWM Pulse)	OUT
9	+5V	---	OUT
10	nTECTL	Toner Empty LED Control	OUT

7.2.9. CN009 (Toner Empty Sensor)

CN009 (Toner Empty Sensor)

Pin No.	Signal Name	Description	Direction
1	+5VGND	GND	---
2	TE_ROUT	Toner Empty Sensor	IN

7.2.10. CN010 (Polygon Motor)

CN010 (Polygon Motor)

Pin No.	Signal Name	Description	Direction
1	nSNRCLK	Scanner Clock	OUT
2	nSNRLD	Scanner Lock	IN
3	nSNRCTL	Scanner Control	OUT
4	24VGND	------	---
5	+24V	------	OUT

7.2.11. CN011 (Pickup Solenoid)

CN011 (Pickup Solenoid)

Pin No.	Signal Name	Description	Direction
1	PUSOL_CTL	Pick Up Solenoid Control	OUT
2	+24VGND	------	---

7.2.12. CN012 (Registration Solenoid)

CN012 (Registration Solenoid)

Pin No.	Signal Name	Description	Direction
1	REGSOL_CTL	Registration Solenoid Control	OUT
2	+24VGND	------	---

7.2.13. CN013 (Switchback Solenoid)

CN013 (Switchback Solenoid)

Pin No.	Signal Name	Description	Direction
1	EXITSOL_CTL	Switchback Solenoid Control	OUT
2	+24VGND	------	---

7.2.14. CN014 (REG-TOP Sensor)

CN014 (REG-TOP Sensor)

Pin No.	Signal Name	Description	Direction
1	+5V	+5V	OUT
2	5VGND	GND	---
3	5VGND	GND	---
4	nREGSEN	REGISTLATION Sensor	IN
5	nTOPSEN	TOP Sensor	IN

7.2.15. CN015 (EXIT Sensor)

CN015 (EXIT Sensor)

Pin No.	Signal Name	Description	Direction
1	+5VSP	+5V (Power Save Controlled)	OUT
2	5VGND	GND	---
3	5VGND	GND	---
4	nEXITSEN	EXIT Sensor	IN

7.2.16. CN016 (Paper Empty Sensor)

CN016 (Paper Empty Sensor)

Pin No.	Signal Name	Description	Direction
1	5VGND	GND	---
2	PNON	Paper Empty Sensor	OUT
3	+5VSP	+5V (Power Save Controlled)	IN

7.2.17. CN017 (MAIN Motor)

CN017 (Main Motor)

Pin No.	Signal Name	Description	Direction
7	+24VIR	24V through Door Interlock Switch	OUT
6	+24VIR	24V through Door Interlock Switch	OUT
5	24VGND	---	---
4	24VGND	---	---
3	nMMCTL	Main Motor Control	OUT
2	nMMLD	Main Motor Lock	OUT
1	nMMHALF	Motor Rotation Speed Control	OUT

7.2.18. CN018 (FAN Control)

CN018 (Fan Control)

Pin No.	Signal Name	Description	Direction
1	FANPWR	+24V Fan Power	OUT
2	24VGND	GND	---
3	FANERR	Fan Error Signal	IN

7.2.19. CN019 (Indicator Board)

CN019 (Indicator Board)

Pin No.	Signal Name	Description	Direction
1	+5V	+5V	---
2	nKEY	Key Input	IN
3	nREADY	Ready LED (Green)	OUT
4	nERROR	Error LED (Red)	OUT
5	nTONER	Toner LED (Yellow)	OUT
6	5VGND	Ground	---

7.2.20. CN020 (Flash: for updating engine firmware)

CN020 (Flash: for updating engine firmware)

Pin No.	Signal Name	Description	Direction
1	+5V	+5V	---
2	UI2	Serial Data (In)	IN
3	UO2	Serial Data (Out)	OUT
4	+5VSP	+5V (Power Save Controlled) for LED update tool	OUT
5	nINIT	EEPROM Initialize Control	IN
6	nMMLD	Engine CPU Flash Data Update Control	IN
7	5VGND	Ground	---

7.3. Registration & Paper Top Sensor Board

7.3.1. CN401 (REG-TOP Sensor)

CN401 (REG-TOP Sensor)

Pin No.	Signal Name	Description	Direction
1	nTOPSEN	TOP Sensor	OUT
2	nREGSEN	Registration Sensor	OUT
3	5VGND	GND	---
4	5VGND	GND	---
5	+5V	+5V	IN

7.4. Paper Exit/ADU Paper Jam Sensor Board

7.4.1. CN402 (EXIT Sensor)

CN402 (EXIT Sensor)

Pin No.	Signal Name	Description	Direction
1	nEXITSEN	EXIT Sensor	OUT
2	5VGND	GND	---
3	5VGND	GND	---
4	+5VSP	+5V (Power Save Controlled)	IN

7.5. Indicator Board

7.5.1. CN406 (to Main Board CN6)

CN406 (to Main Board CN6)

Pin No.	Signal Name	Description	Direction
1	5VGND	---	---
2	nTONER	Toner/Process LED (Yellow)	IN
3	nERROR	ERROR LED (Red)	IN
4	nREADY	Ready LED (Green)	IN
5	nKEY	Key Input	OUT
6	+5V	---	IN

7.6. Paper Empty Sensor Board

7.6.1. CN450 (Paper Empty Sensor)

CN450 (Paper Empty Sensor)

Pin No.	Signal Name	Description	Direction
1	5VGND	GND	---
2	PNON	Paper Empty Sensor	OUT
3	+5VSP	+5V (Power Save Controlled)	IN

7.7. Toner Empty Sensor Board

7.7.1. CN451 (Toner Empty Sensor)

CN451 (Toner Empty Sensor)

Pin No.	Signal Name	Description	Direction
1	+5VGND	GND	---
2	TE_ROUT	Toner Empty Sensor	OUT

7.8. 2nd Feeder I/F Board

7.8.1. CN452 (to Engine Control Board CN004)

CN452 (to Engine Control Board CN004)

Pin No.	Signal Name	Description	Direction
1	24VGND	---	---
2	nMOEN_OP	2nd Feeder Motor Control	IN
3	CLOCK_OP	CLOCK	IN
4	+24V	+24V	IN
5	nPUCTL_OP	2nd Feeder Paper Pickup Control	IN
6	nOPTION	2nd Feeder Detection	OUT
7	+5V	+5V	IN
8	nPNON_OP	2nd Feeder Paper Empty	OUT
9	5VGND	---	---

7.8.2. CN453 (to 2nd Feeder)

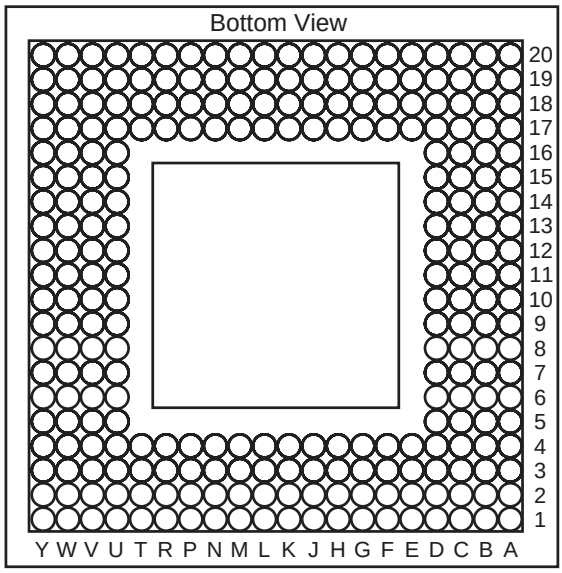
CN453 (to 2nd Feeder)

Pin No.	Signal Name	Description	Direction
1	5VGND	---	---
2	nMOEN_OP	2nd Feeder Motor Control	OUT
3	nPNON_OP	2nd Feeder Paper Empty	IN
4	nOPTION	2nd Feeder Detection	IN
5	nPUCTL_OP	2nd Feeder Paper Pickup Control	OUT
6	24VGND	---	---
7	+5V	+5V	OUT
8	+24V	+24V	OUT
9	CLOCK_OP	CLOCK	OUT

8 Component Reference Guide

8.1. Main Control Board

8.1.1. IC1 (Main Control CPU)



IC1 (Main Control CPU)

Pin No.	Symbol	In/Out	Function
A1	GND1	-	Ground
B1	PCIAD[18]	In/Out	PCI Address and Data 18
C1	PCICKIN	In	PCI Clock Input
D1	PCIAD[21]	In/Out	PCI Address and Data 21
E1	GNDA5	-	Ground
F1	CLK48IN	-	Ground
G1	USBDSCON	-	Ground
H1	USBD_P	-	Ground
J1	AGND1	-	Ground
K1	nPCICBE[3]	In	PCI Command and Bus Enable 3
L1	PCIAD[26]	In/Out	PCI Address and Data 26
M1	CLK50OUT	Out	CPU Clock Output
N1	PCIAD[29]	In/Out	PCI Address and Data 29
P1	nPCIREQ	In	PCI Request
R1	F2	In	PLL Frequency set 2
T1	F1	In	PLL Frequency set 1
U1	TMC2	Out	Test Control Output
V1	NDRST	In	RCU Reset
W1	DDI	In	RCU Data Input
Y1	nEETCS	Out	EET Chip Select
Y2	nPIFFLT	Out	Parallel I/F Fault
Y3	PIFDATA[7]	In/Out	Parallel I/F Data 7
Y4	nSYSRST	In	System Reset
Y5	nPIFSLIN	In	Parallel I/F Select In
Y6	PIFDATA[6]	In/Out	Parallel I/F Data 6
Y7	PIFDATA[2]	In/Out	Parallel I/F Data 2
Y8	nSBSY	In	Status Busy
Y9	GNDA12	-	Ground

Pin No.	Symbol	In/Out	Function
B18	FRMA[11]	Out	Flash/Mask ROM Address 11
B17	FRMA[8]	Out	Flash/Mask ROM Address 8
B16	FRMA[6]	Out	Flash/Mask ROM Address 6
B15	FRMA[4]	Out	Flash/Mask ROM Address 4
B14	FRMA[1]	Out	Flash/Mask ROM Address 1
B13	nFRCS[0]	Out	Flash/Mask ROM Chip Select 0
B12	CLK54OUT	Out	Engine Clock Output
B11	PCIAD[0]	In/Out	PCI Address and Data 0
B10	PCIAD[5]	In/Out	PCI Address and Data 5
B9	GNDA3	-	Ground
B8	PCIAD[9]	In/Out	PCI Address and Data 9
B7	PCIAD[13]	In/Out	PCI Address and Data 13
B6	nPCICBE[1]	In/Out	PCI Command and Bus Enable 1
B5	nPCIPERR	In/Out	PCI Parity Error
B4	nPCITRDY	In/Out	PCI Target Ready
B3	GNDA2	-	Ground
C3	nPCIFRM	In/Out	PCI Frame
D3	PCIAD[19]	In/Out	PCI Address and Data 19
E3	PCIAD[22]	In/Out	PCI Address and Data 22
F3	USBCON	-	Ground
G3	N.C	-	N.C
H3	N.C	-	N.C
J3	DVDD1	-	+2.5V
K3	PCIAD[24]	In/Out	PCI Address and Data 24
L3	PCIAD[27]	In/Out	PCI Address and Data 27
M3	GNDA7	-	Ground
N3	PCIAD[31]	In/Out	PCI Address and Data 31
P3	nPCIINT	In	PCI Interrupt

IC1

Pin No.	Symbol	In/Out	Function
Y10	TMS	In	Boundary Scan Mode
Y11	TDI	In	Boundary Scan Data Input
Y12	nPRDY	In	Printer Engine Ready
Y13	CXD	Out	Command Data
Y14	nCBSY	Out	Command Data Busy
Y15	PIFDIR	Out	Parallel I/F Data Buffer Direction
Y16	nRDYLED	Out	Ready LED ON/OFF
Y17	EEPDATA	In/Out	EEPROM Data
Y18	SDMD[15]	In/Out	SDRAM Data 15
Y19	SDMD[1]	In/Out	SDRAM Data 1
Y20	SDMD[0]	In/Out	SDRAM Data 0
W20	SDMD[2]	In/Out	SDRAM Data 2
V20	SDMD[3]	In/Out	SDRAM Data 3
U20	SDMD[5]	In/Out	SDRAM Data 5
T20	GNDA8	-	Ground
R20	SDMD[7]	In/Out	SDRAM Data 7
P20	SDCLK	Out	SDRAM Clock
N20	SDRAS	Out	SDRAM Row Address Strobe
M20	VDDA2	-	+2.5V
L20	SDBA[0]	Out	SDRAM Bank Address 0
K20	SDMA[10]	Out	SDRAM Address 10
J20	SDMA[0]	Out	SDRAM Address 0
H20	SDMA[1]	Out	SDRAM Address 1
G20	SDMA[2]	Out	SDRAM Address 2
F20	SDMA[3]	Out	SDRAM Address 3
E20	FRDATA[5]	In/Out	Flash/Mask ROM Data 5
D20	FRDATA[2]	In/Out	Flash/Mask ROM Data 2
C20	FRMA[17]	Out	Flash/Mask ROM Address 17
B20	FRMA[14]	Out	Flash/Mask ROM Address 14
A20	FRMA[19]	Out	Flash/Mask ROM Address 19
A19	FRMA[16]	Out	Flash/Mask ROM Address 16
A18	FRMA[9]	Out	Flash/Mask ROM Address 9
A17	FRMA[13]	Out	Flash/Mask ROM Address 13
A16	GNDA12	-	Ground
A15	FRMA[3]	Out	Flash/Mask ROM Address 3
A14	FRMA[0]	Out	Flash/Mask ROM Address 0
A13	nFROE	Out	Flash/Mask ROM Output Enable
A12	CLK54IN	In	Engine Clock Input
A11	PCIAD[2]	In/Out	PCI Address and Data 2
A10	PCIAD[6]	In/Out	PCI Address and Data 6
A9	nPCICBE[0]	In/Out	PCI Command and Byte Enable 0
A8	PCIAD[10]	In/Out	PCI Address and Data 10
A7	PCIAD[14]	In/Out	PCI Address and Data 14
A6	PCIPAR	In/Out	PCI Parity
A5	nPCISTP	In/Out	PCI Stop
A4	nPCIRDY	In/Out	PCI Initiator Ready
A3	nPCICBE[2]	In/Out	PCI Command and Byte Enable 2
A2	PCIAD[17]	In/Out	PCI Address and Data 17
B2	PCICKOUT	Out	PCI Clock Output
C2	PCIAD[16]	In/Out	PCI Address and Data 16
D2	PCIAD[20]	In/Out	PCI Address and Data 20
E2	PCIAD[23]	In/Out	PCI Address and Data 23
F2	USBIEN	In	Ground

Pin No.	Symbol	In/Out	Function
R3	TMC1	In	Test Control Input
T3	DDO	Out	RCU Data Output
U3	GNDA9	-	Ground
V3	DBIN	In	RCU Interrupt
V4	nPIFACK	Out	Parallel I/F Acknowledge
V5	nPIFINIT	In	Parallel I/FInitialize
V6	PIFDATA[4]	In/Out	Parallel I/F Data 4
V7	PIFDATA[0]	In/Out	Parallel I/F Data 0
V8	PIFDATA[3]	In/Out	Parallel I/F Data 3
V9	SXD	In	Status Data
V10	TRST	In	Boundary Scan Test Reset
V11	PIFHD	Out	Parallel I/F High Drive
V12	VCCA8	-	+3.3V
V13	nPRINT	Out	Print Page
V14	nKEY	In	Key Sence
V15	nERRLED	Out	Error LED ON/OFF
V16	GNDA10	-	Ground
V17	SDMD[12]	In/Out	SDRAM Data 12
V18	SDMD[11]	In/Out	SDRAM Data 11
U18	VCCA7	-	+3.3V
T18	SDMD[9]	In/Out	SDRAM Data 9
R18	SDDQM[1]	Out	SDRAM Data Mask 1
P18	SDWE	Out	SDRAM Write Enable
N18	nSDCS[1]	Out	SDRAM Chip Select 1
M18	SDCKE	Out	SDRAM Clock Enable
L18	SDMA[9]	Out	SDRAM Address 9
K18	SDMA[7]	Out	SDRAM Address 7
J18	VCCA3	-	+3.3V
H18	SDMA[6]	Out	SDRAM Address 6
G18	FRDATA[4]	In/Out	Flash/Mask ROM Data 4
F18	FRDATA[6]	In/Out	Flash/Mask ROM Data 6
E18	FRDATA[3]	In/Out	Flash/Mask ROM Data 3
D18	FRMA[18]	Out	Flash/Mask ROM Address 18
C18	FRDATA[0]	In/Out	Flash/Mask ROM Data 0
C17	FRMA[12]	Out	Flash/Mask ROM Address 12
C16	FRMA[7]	Out	Flash/Mask ROM Address 7
C15	FRMA[5]	Out	Flash/Mask ROM Address 5
C14	FRMA[2]	Out	Flash/Mask ROM Address 2
C13	nFRCS[1]	Out	Flash/Mask ROM Chip Select 1
C12	GNDA4	-	Ground
C11	PCIAD[1]	In/Out	PCI Address and Data 1
C10	PCIAD[4]	In/Out	PCI Address and Data 4
C9	VCCA1	-	+3.3V
C8	PCIAD[8]	In/Out	PCI Address and Data 8
C7	PCIAD[12]	In/Out	PCI Address and Data 12
C6	PCIAD[15]	In/Out	PCI Address and Data 15
C5	nPCISERRZ	In	PCI System Error
C4	VDDA1	-	+2.5V
D4	GND2	-	Ground
E4	VCC3	-	+3.3V
F4	VDD4	-	+2.5V
G4	nPCIDSEL	In/Out	PCI Device Select
H4	GND6	-	Ground

IC1

Pin No.	Symbol	In/Out	Function
G2	CLK48OUT	-	N.C.
H2	USBD_N	-	Ground
J2	AVDD1	-	+2.5V
K2	DGND1	-	Ground
L2	PCIAD[25]	In/Out	PCI Address and Data 25
M2	CLK50IN	In	CPU Clock Input
N2	PCIAD[30]	In/Out	PCI Address and Data 30
P2	nPCIGNT	Out	PCI Grant
R2	F0	In	PLL Frequency set 0
T2	MODE	In	PLL Test Mode
U2	USB_TEST	-	Ground
V2	DMS	In	RCU Mode Select
W2	DCK	In	RCU Clock
W3	PIFSEL	In	Parallel I/F Select
W4	nPIFBSY	Out	Parallel I/F Busy
W5	nPIFAFD	In	Parallel I/F Auto Feed
W6	PIFDATA[5]	In/Out	Parallel I/F Data 5
W7	PIFDATA[1]	In/Out	Parallel I/F Data 1
W8	nPIFSTB	In	Parallel I/F Strobe
W9	nHSYNC	In	Horizontal Synchronization
W10	TCK	In	Boundary Scan Test Clock
W11	TDO	Out	Boundary Scan Data Output
W12	PPRDY	In	Printer Engine Power Ready
W13	nVIDEO	Out	Video Data
W14	nPSAVE	Out	Power Save
W15	VDDA3	-	+2.5V
W16	EEPCLK	Out	EEPROM Clock
W17	SDMD[14]	In/Out	SDRAM Data 14
W18	SDMD[13]	In/Out	SDRAM Data 13
W19	GNDA11	-	Ground
V19	SDMD[4]	In/Out	SDRAM Data 4
U19	SDMD[10]	In/Out	SDRAM Data 10
T19	SDMD[6]	In/Out	SDRAM Data 6
R19	SDMD[8]	In/Out	SDRAM Data 8
P19	VCCA6	-	+3.3V
N19	SDCAS	Out	SDRAM Column Address Strobe
M19	nSDCS[0]	Out	SDRAM Chip Select 0
L19	VCCA4	-	+3.3V
K19	SDBA[1]	Out	SDRAM Bank Address 1
J19	RESERV3	-	Reserve
H19	SDMA[5]	Out	SDRAM Address 5
G19	SDMA[4]	Out	SDRAM Address 4
F19	VCCA2	-	+3.3V
E19	FRMA[20]	Out	Flash/Mask ROM Address 20
D19	FRDATA[7]	In/Out	Flash/Mask ROM Data 7
C19	FRMA[21]	Out	Flash/Mask ROM Address 21
B19	FRMA[15]	Out	Flash/Mask ROM Address 15

Pin No.	Symbol	In/Out	Function
J4	N.C	-	N.C
K4	VDD6	-	+2.5V
L4	PCIAD[28]	In/Out	PCI Address and Data 28
M4	VCCA5	-	+3.3V
N4	GND8	-	Ground
P4	nPCIRST	Out	PCI Reset
R4	VDD8	-	+2.5V
T4	VCC5	-	+3.3V
U4	GND10	-	Ground
U5	VCC7	-	+3.3V
U6	VDD10	-	+2.5V
U7	PIFPERR	Out	Parallel I/F Printer Error
U8	GND11	-	Ground
U9	nTOP	In	Paper Top
U10	VDD11	-	+2.5V
U11	nPURGE	In	Paper Purge
U12	CCLK	Out	Communication Clock
U13	GND12	-	Ground
U14	nDRMLED	Out	Drum LED ON/OFF
U15	VDD12	-	+2.5V
U16	VCC8	-	+3.3V
U17	GND13	-	Ground
T17	VCC6	-	+3.3V
R17	VDD9	-	+2.5V
P17	SDDQM[0]	Out	SDRAM Data Mask 0
N17	GND9	-	Ground
M17	SDMA[11]	In/Out	SDRAM Data 11
L17	VDD7	-	+2.5V
K17	SDMA[8]	In/Out	SDRAM Data 8
J17	GNDA6	-	Ground
H17	GND7	-	Ground
G17	FRDATA[1]	In/Out	Flash/Mask ROM Data 1
F17	VDD5	-	+2.5V
E17	VCC4	-	+3.3V
D17	GND5	-	Ground
D16	VCC2	-	+3.3V
D15	VDD3	-	+2.5V
D14	FRMA[10]	Out	Flash/Mask ROM Address10
D13	GND4	-	Ground
D12	nFRWE	Out	Flash ROM Write Enable
D11	VDD2	-	+2.5V
D10	PCIAD[3]	In/Out	PCI Address and Date 3
D9	PCIAD[7]	In/Out	PCI Address and Date 7
D8	GND3	-	Ground
D7	PCIAD[11]	In/Out	PCI Address and Date 11
D6	VDD1	-	+2.5V
D5	VCC1	-	+3.3V

8.1.2. IC2 (Reset IC)

IC2 (Reset IC)

Pin No.	Symbol	In/Out	Function
1	GND	-	Ground
2	VDD	-	+2.5V
3	OUT	Out	Reset Pulse Output
4	Cd	In	Reset Time Set

8.1.3. IC3 (Flash/Mask ROM)

IC3 (Flash/Mask ROM) KX-P7310 : 4MB, KX-P7305 : 2MB or 4 MB ( ) : for using 2MB

Pin No.	Symbol	In/Out	Function
1	nBYTE	In	nBYTE/Word Mode Selection
2	A16	In	Address 16
3	A15	In	Address 15
4	A14	In	Address 14
5	A13	In	Address 13
6	A12	In	Address 12
7	A11	In	Address 11
8	A10	In	Address 10
9	A09	In	Address 9
10	A08	In	Address 8
11	A19	In	Address 19
12	GND1	-	Ground
13	A20 (nWE)	In	Address 20 (Write Enable)
14	A18	In	Address 18
15	A17	In	Address 17
16	A07	In	Address 7
17	A06	In	Address 6
18	A05	In	Address 5
19	A04	In	Address 4
20	A03	In	Address 3
21	A02	In	Address 2
22	A01	In	Address 1
23	A00	In	Address 0
24	nCE	In	Chip Enable

Pin No.	Symbol	In/Out	Function
25	GND2	-	Ground
26	GND4	-	Ground
27	nOE	In	Output Enable
28	DQ00	In/Out	Data 0
29	DQ08	-	N.C.
30	DQ01	In/Out	Data 1
31	DQ09	-	N.C.
32	DQ02	In/Out	Data 2
33	DQ10	-	N.C.
34	DQ03	In/Out	Data 3
35	DQ11	-	N.C.
36	nWE (N.C)	In	Write Enable (N.C)
37	VCC1	-	+3.3V
38	VCC2	-	+3.3V
39	DQ04	In/Out	Data 4
40	DQ12	-	N.C.
41	DQ05	In/Out	Data 5
42	DQ13	-	N.C.
43	DQ06	In/Out	Data 6
44	DQ14	-	N.C.
45	DQ07	In/Out	Data 7
46	DQ15	In/Out	Mode Select
47	GND5	-	Ground
48	GND3	-	Ground

8.1.4. IC5 (RAM)

IC5 (RAM)

Pin No.	Symbol	In/Out	Function
1	VCC1	-	+3.3V
2	DQ0	In/Out	Data 0
3	VCCQ1	-	+3.3V
4	DQ1	In/Out	Data 1
5	DQ2	In/Out	Data 2
6	VSSQ1	-	Ground
7	DQ3	In/Out	Data 3
8	DQ4	In/Out	Data 4
9	VCCQ2	-	+3.3V
10	DQ5	In/Out	Data 5
11	DQ6	In/Out	Data 6
12	VSSQ2	-	Ground
13	DQ7	In/Out	Data 7
14	VCC2	-	+3.3V
15	DGML	In	Data Mask Lower Byte
16	nWE	In	Write Enable
17	nCAS	In	Column Address Strobe
18	nRAS	In	Row Address Strobe
19	nCS	In	Chip Select
20	A13	In	Address 13
21	A12	In	Address 12
22	A10	In	Address 10
23	A0	In	Address 0
24	A1	In	Address 1
25	A2	-	Address 2
26	A3	In	Address 3
27	VCC3	-	+3.3V

Pin No.	Symbol	In/Out	Function
28	VSS1	-	Ground
29	A4	In	Address 4
30	A5	In	Address 5
31	A6	In	Address 6
32	A7	In	Address 7
33	A8	In	Address 8
34	A9	In	Address 9
35	A11	In	Address 11
36	NC1	-	N.C.
37	CKE	In	Clock Enable
38	CLK	-	Clock
39	DQMU	In	Data Mask Upper Byte
40	NC2	-	N.C.
41	VSS2	-	Ground
42	DQ8	In/Out	Data 8
43	VCCQ3	-	+3.3V
44	DQ9	In/Out	Data 9
45	DQ10	In/Out	Data 10
46	VSSQ3	-	Ground
47	DQ11	In/Out	Data 11
48	DQ12	In/Out	Data 12
49	VCCQ4	-	+3.3V
50	DQ13	In/Out	Data 13
51	DQ14	In/Out	Data 14
52	VSSQ4	-	Ground
53	DQ15	In/Out	Data 15
54	VSS3	-	GND

8.1.5. IC6 (LAN IC)

IC6 (LAN IC)

Pin No.	Symbol	In/Out	Function
1	MA3/EEDI	Out	BIOS ROM/Flash Address 3/ EEPROM Data In
2	MA4/EECLK	Out	BIOS ROM/Flash Address 4/ EEPROM Clock
3	MA5	-	N.C.
4	MDIO	-	N.C.
5	MDC	-	N.C.
6	RXCLK	-	N.C.
7	RXD0/MA6	-	N.C.
8	VSSIO1	-	Ground
9	VDDIO1	-	+3.3V
10	RXD1/MA7	-	N.C.
11	RXD2/MA8	-	N.C.
12	RXD3/MA9	-	N.C.
13	RXOE	-	N.C.
14	RXER/MA10	-	N.C.
15	RXDV/MA11	-	N.C.
16	VSSIO2	-	Ground.
17	X1	In	Crystal/Oscillator Input
18	X2	-	N.C.
19	VDDIO2	-	+3.3V
20	PHYVSS1	-	Ground
21	PHYVDD1	-	+3.3V
22	TXD0/MA12	-	N.C.
23	TXD1/MA13	-	N.C.
24	TXD2/MA14	-	N.C.
25	TXD3/MA15	-	N.C.
26	VSSIO3	-	Ground
27	VDDIO3	-	+3.3V
28	COL	-	N.C.
29	CRS	-	N.C.
30	TXEN	-	N.C.
31	TXCLK	-	N.C.
32	PHYVSS2	-	Ground
33	PHYVDD2	-	+3.3V
34	NC1	-	N.C.
35	FSVSS	-	Ground
36	FSVDD	-	N.C.
37	SUBGND1	-	N.C.
38	RXAVSS1	-	Ground
39	RXAVDD1	-	+3.3V
40	VREF	In	Bandgap Reference
41	RESERVED1	-	N.C.
42	NC2	-	N.C.
43	NC3	-	N.C.
44	RXVSS2	-	Ground
45	TPRDM	In	Receive Differential Data -

Pin No.	Symbol	In/Out	Function
46	TPRDP	In	Receive Differential Data +
47	RXVDD2	-	+3.3V
48	NC4	-	N.C.
49	SUBGND2	-	Ground
50	RESERVED2	-	N.C.
51	TXDVSS	-	Ground
52	TXIOVSS1	-	Ground
53	TPTDM	Out	Transmit Differential Data -
54	TPTDP	Out	Transmit Differential Data +
55	TXIOVSS2	-	Ground
56	TXDVDD	-	+3.3V
57	MACVSS1	-	Ground
58	MACVDD1	-	+3.3V
59	PMEN/ nCLKRUN	-	N.C.
60	PCICLK	In	Clock
61	nINTA	Out	Interrupt A
62	nRST	In	Reset
63	nGNT	In	Grant
64	nREQ	Out	Request
65	PCIVSS1	-	Ground
66	AD31	In/Out	Address and Data 31
67	AD30	In/Out	Address and Data 30
68	AD29	In/Out	Address and Data 29
69	PCIVDD1	-	+3.3V
70	AD28	In/Out	Address and Data 28
71	AD27	In/Out	Address and Data 27
72	AD26	In/Out	Address and Data 26
73	AD25	In/Out	Address and Data 25
74	AD24	In/Out	Address and Data 24
75	nCBE3	In/Out	Bus Command/Byte Enable 3
76	IDSEL	In	Initialization Device Select
77	PCIVSS2	-	Ground
78	AD23	In/Out	Address and Data 23
79	AD22	In/Out	Address and Data 22
80	PCIVDD2	-	+3.3V
81	AD21	In/Out	Address and Data 21
82	AD20	In/Out	Address and Data 20
83	AD19	In/Out	Address and Data 19
84	VSSIO4	-	Ground
85	NC	-	N.C.
86	AD18	In/Out	Address and Data 18
87	AD17	In/Out	Address and Data 17
88	AD16	In/Out	Address and Data 16
89	nCBE2	In/Out	Bus Command/Byte Enable 2
90	PCIVSS3	-	Ground
91	nFRAME	In/Out	Frame

IC6

Pin No.	Symbol	In/Out	Function
92	nIRDY	In/Out	Initiator Ready
93	nTRDY	In/Out	Target Ready
94	PCIVDD3	-	+3.3V
95	nDEVSEL	In/Out	Device Select
96	nSTOP	In/Out	Stop
97	nPERR	In/Out	Parity Error
98	nSERR	In/Out	System Error
99	PAR	In/Out	Parity
100	nCBE1	In/Out	Bus Command/Byte Enable 1
101	AD15	In/Out	Address and Data 15
102	AD14	In/Out	Address and Data 14
103	PCIVSS4	-	Ground
104	AD13	In/Out	Address and Data 13
105	AD12	In/Out	Address and Data 12
106	AD11	In/Out	Address and Data 11
107	PCIVDD4	-	+3.3V
108	AD10	In/Out	Address and Data 10
109	AD9	In/Out	Address and Data 9
110	AD8	In/Out	Address and Data 8
111	nCBE0	In/Out	Bus Command/Byte Enable 0
112	AD7	In/Out	Address and Data 7
113	AD6	In/Out	Address and Data 6
114	PCIVSS5	-	Ground
115	AD5	In/Out	Address and Data 5
116	AD4	In/Out	Address and Data 4
117	PCIVDD5	-	+3.3V
118	AD3	In/Out	Address and Data 3
119	AD2	In/Out	Address and Data 2
120	AD1	In/Out	Address and Data 1

Pin No.	Symbol	In/Out	Function
121	AD0	In/Out	Address and Data 0
122	3VAUX	-	N.C.
123	PWRGOOD	In	PCI Bus Power Good
124	MACVSS2	-	Ground
125	NC	-	N.C.
126	SUBGND3	-	Ground
127	RESERVED3	-	N.C.
128	EESEL	-	N.C.
129	nMCS	-	N.C.
130	nMRD	-	N.C.
131	nMWR	-	N.C.
132	MD0	-	N.C.
133	MD1/	-	N.C.
	nCFGDIS		N.C.
134	MD2	-	N.C.
135	MD3	-	N.C.
136	VSSIO5	-	Ground
137	VDDIO5	-	+3.3V
138	MD4/EEDO	-	N.C.
			N.C.
139	MD5	-	N.C.
140	MD6	-	N.C.
141	MD7	-	N.C.
142	MA0/	Out	BIOS ROM/Flash Address 0/
	nLEDACT		TX/RX Activity
143	MA1/	-	N.C.
	nLED10		
144	MA2/	-	N.C.
	nLED100		

8.1.6. IC7 (EEPROM)

IC7 (EEPROM)

Pin No.	Symbol	In/Out	Function
1	A0	-	Ground
2	A1	-	Ground
3	A2	-	Ground
4	VSS	-	Ground
5	SDA	In/Out	Serial Data/ Address
6	SCL	In	Serial Clock
7	WP	In	Write Protect
8	VCC	-	+3.3V

8.1.7. IC10 (Regulator)

IC10 (Regulator)

Pin No.	Symbol	In/Out	Function
1	IN	In	5V Input
2	NC	-	N.C.
3	IN	In	5V Input
4	Vc	In	ON/OFF Control
5	GND	-	Ground
6	GND	-	Ground
7	Vout	Out	3.3V Output
8	Vout	Out	3.3V Output

8.1.8. IC12 (Regulator)

IC12 (Regulator)

Pin No.	Symbol	In/Out	Function
1	V_{IN}	In	5V Input
2	Vc	In	ON/OFF Control
3	Vo	Out	2.5V Output
4	NC	-	N.C.
5	GND	-	Ground

8.1.9. IC13 (PAL)

IC13 (PAL)

Pin No.	Symbol	In/Out	Function
1	TDI	In	Test Data In
2	A5	-	N.C
3	A6	-	N.C
4	A7	-	N.C
5	GND1	-	Ground
6	VCCO	-	+3.3V
7	A8	-	N.C
8	A9	Out	PCI Grant for LAN Controller
9	A10	Out	PCI Grant for USB Controller
10	A11	In	PCI Request from USB Controller
11	TCK	In	Test Clock
12	VCC1	-	+3.3V
13	GND2	-	Ground
14	A12	Out	Flash/Mask ROM Chip Select
15	A13	Out	Flash/Mask ROM Address 22
16	A14	Out	PCI Request
17	A15	Out	PCI Target Ready
18	CLK1/I	-	N.C
19	CLK2/I	-	N.C
20	B0	-	N.C
21	B1	-	N.C
22	B2	-	N.C
23	B3	-	N.C
24	B4	-	N.C

Pin No.	Symbol	In/Out	Function
25	TMS	In	Test Mode Select
26	B5	-	N.C
27	B6	-	N.C
28	B7	-	N.C
29	GND3	-	Ground
30	VCCO1	-	+3.3V
31	B8	-	N.C
32	B9	-	N.C
33	B10	-	N.C
34	B11	-	N.C
35	TDO	-	Test Data Out
36	VCC2	-	+3.3V
37	GND4	-	Ground
38	B12	-	N.C
39	B13	-	N.C
40	B14	-	N.C
41	B15/GOE1	-	N.C
42	CLK3/I	-	N.C
43	CLK0/I	In	Clock
44	A0/GOE1	In	Flash/Mask ROM Chip Select 0
45	A1	In	Reset
46	A2	Out	PCI Frame
47	A3	Out	PCI Initiator Ready
48	A4	Out	PCI Grant

8.1.10. IC14 (USB)

IC14 (USB)

Pin No.	Symbol	In/Out	Function
1	R1	In/Out	Internal Mode Setting
2	AVDD1	-	+3.3V
3	AVSS1	-	Ground
4	AVDD2	-	+3.3V
5	AVSS2	-	Ground
6	DP	In/Out	USB D+
7	AVSS3	-	Ground
8	DM	In/Out	USB D-
9	AVSS4	-	Ground
10	AVDD3	-	+3.3V
11	VBUS	In	USB VBUS
12	SCANEN	-	Ground
13	ATPGEN	-	Ground
14	TIN2	-	Ground
15	TIN1	-	Ground
16	TIN0	-	Ground
17	TPORT1	-	Ground
18	TPORT0	-	Ground
19	VSS1	-	Ground
20	STOP	In/Out	PCI Stop
21	VDD1	-	+3.3V
22	VSS2	-	Ground
23	IRDY	In/Out	PCI Initiator Ready
24	TRDY	In/Out	PCI Target Ready
25	DEVSEL	In/Out	PCI Device Select
26	VDD2	-	+3.3V
27	VSS3	-	Ground
28	INTA	In	PCI Interrupt A
29	CBE3	In/Out	PCI Command and Bus Enable 3
30	AD31	In/Out	PCI Address and Data 31
31	AD30	In/Out	PCI Address and Data 30
32	AD29	In/Out	PCI Address and Data 29
33	VSS4	-	Ground
34	AD28	In/Out	PCI Address and Data 28
35	AD27	In/Out	PCI Address and Data 27
36	AD26	In/Out	PCI Address and Data 26
37	AD25	In/Out	PCI Address and Data 25
38	VDD3	-	+3.3V
39	CBE2	In/Out	PCI Command and Bus Enable 2
40	AD24	In/Out	PCI Address and Data 24
41	AD23	In/Out	PCI Address and Data 23
42	AD22	In/Out	PCI Address and Data 22
43	VSS5	-	Ground
44	AD21	In/Out	PCI Address and Data 21
45	AD20	In/Out	PCI Address and Data 20
46	AD19	In/Out	PCI Address and Data 19
47	AD18	In/Out	PCI Address and Data 18
48	AD17	In/Out	PCI Address and Data 17
49	VSS6	-	Ground
50	VDD4	-	+3.3V

Pin No.	Symbol	In/Out	Function
51	VDD5	-	+3.3V
52	VSS7	-	Ground
53	CBE1	In/Out	PCI Command and Bus Enable 1
54	AD16	In/Out	PCI Address and Data 16
55	AD15	In/Out	PCI Address and Data 15
56	AD14	In/Out	PCI Address and Data 14
57	VSS8	-	Ground
58	PAR	In/Out	PCI Parity
59	SERR	Out	PCI System Error
60	PERR	In/Out	PCI Parity Error
61	PCIRST	In	PCI Reset
62	VSS9	-	Ground
63	PCLK	In	PCI Clock
64	VDD6	-	+3.3V
65	GNT	In	PCI Grant
66	REQ	Out	PCI Request
67	IDSEL	In	PCI ID Select
68	FRAME	In/Out	PCI Frame
69	VSS10	-	Ground
70	AD13	In/Out	PCI Address and Data 13
71	AD12	In/Out	PCI Address and Data 12
72	AD11	In/Out	PCI Address and Data 11
73	AD10	In/Out	PCI Address and Data 10
74	VSS11	-	Ground
75	VDD7	-	+3.3V
76	VDD8	-	+3.3V
77	VSS12	-	Ground
78	AD9	In/Out	PCI Address and Data 9
79	AD8	In/Out	PCI Address and Data 8
80	AD7	In/Out	PCI Address and Data 7
81	AD6	In/Out	PCI Address and Data 6
82	VSS13	-	Ground
83	CBE0	In/Out	PCI Command and Bus Enable 0
84	AD5	In/Out	PCI Address and Data 5
85	AD4	In/Out	PCI Address and Data 4
86	AD3	In/Out	PCI Address and Data 3
87	VDD9	-	+3.3V
88	AD2	In/Out	PCI Address and Data 2
89	AD1	In/Out	PCI Address and Data 1
90	AD0	In/Out	PCI Address and Data 0
91	CLKSEL1	In	Clock Select 1
92	CLKSEL0	In	Clock Select 0
93	XVSS	-	Ground
94	XVDD	-	+3.3V
95	PVDD	-	+3.3V
96	PVSS	-	Ground
97	VC	-	Ground
98	PTEST	-	Ground
99	XI	In	Clock In
100	XO	Out	Clock Out

8.1.11. IC15 (Inverter)

IC15 (Inverter)

Pin No.	Signal Name	Description	Direction
1	1A	See table.	In
2	3Y	See table.	Out
3	2A	See table.	In
4	GND	Ground	-
5	2Y	See table.	Out
6	3A	See table.	In
7	1Y	See table.	Out
8	VCC	+3.3V	-

A (IN)	Y (OUT)
L	H
H	L

8.2. Engine Control Board

8.2.1. IC001 (ASIC)

IC001 (ASIC)

Pin No.	Symbol	In/Out	Function
1	VDD	-	+5V
2	CLKR	OUT	N.C.
3	CLKI	IN	12MHz Clock Input
4	CLKOUT	OUT	N.C.
5	VSS	-	GND
6	NRST	IN	System Reset
7	RSTO	-	N.C
8	nLED0	-	GND
9	nLED1	-	GND
10	nLED2	-	GND
11	AI7	-	GND
12	AI6	-	GND
13	AI5	-	GND
14	AI4	-	CxD Buffer Input
15	AI3	-	CCLK Buffer Input
16	AI2	-	nPRINT Buffer Input
17	AI1	-	nCBSY Buffer Input
18	AI0	-	nPSAVE Buffer Input
19	EO1	-	N.C
20	CI0	-	GND
21	CI1	-	GND
22	CI2	-	GND
23	CI3	-	GND
24	EO2	-	N.C
25	VDD	-	+5V
26	GND	-	GND
27	EO3	-	N.C
28	EO4	-	N.C
29	EO0	-	N.C
30	SEL	-	GND
31	DI3	-	GND
32	FO4	-	N.C
33	DI1	-	GND
34	DI2	-	GND
35	FO3	-	N.C
36	FO2	-	N.C
37	FO1	-	N.C
38	FO0	-	N.C
39	BI7	-	GND
40	BI6	-	GND
41	BI5	-	GND
42	BI4	-	GND
43	BI3	-	GND
44	BI2	-	GND
45	BI1	-	GND
46	BI0	-	GND
47	DI0	-	GND
48	LD5VSW	IN	Drum Unit Detect Switch Status
49	nSM1EN	OUT	2nd Feeder Stepping Motor Enable
50	GND	-	GND
51	VDD	-	+5V
52	SM1A	OUT	2nd Feeder Clock
53	SM1B	-	N.C
54	nTRST	-	GND
55	SM0A	OUT	N.C
56	SM0NA	OUT	N.C
57	SM0B	OUT	N.C
58	SM0NB	OUT	N.C
59	nCS	IN	Serial I/F Chip Select
60	SDI	IN	Serial Input Data
61	SDO	OUT	Serial Output Data
62	SCLK	IN	Serial Clock
63	nLEDO0	-	N.C
64	nLEDO1	-	N.C
65	nLEDO2	-	N.C
66	nBD	IN	Laser Beam Detect of LSU
67	nLDEN	OUT	Laser Enable
68	nADJUST	OUT	Laser Power Adjust
69	nVIDEO	OUT	Video Data Output
70	nVD	IN	Video Data Input
71	nHSYNC	OUT	Hsync
72	CDO3	-	N.C
73	VSS	-	GND
74	PCNTCLK	IN	+5V
75	VDD	-	+5V
76	GND	-	GND
77	ABO0	-	nPSAVE Buffer Output
78	ABO1	-	nCBSY Buffer Output
79	ABO2	-	nPRINT Buffer Output
80	ABO3	-	CCLK Buffer Output
81	ABO4	-	CxD Buffer Output
82	ABO5	-	N.C
83	ABO6	-	N.C
84	ABO7	-	N.C
85	CDO0	-	N.C
86	EFI0	-	+5V
87	EFI1	-	GND
88	EFI2	-	GND
89	EFI3	-	GND
90	EFI4	-	GND
91	CDO2	-	N.C
92	CDO1	-	N.C
93	VSS	-	GND
94	nRAS0	-	GND
95	nRAS1	-	GND
96	nCAS	-	GND
97	nRAS	-	N.C
98	nLCAS	-	N.C
99	nUCAS	-	N.C
100	GND	-	GND

8.2.2. IC002 (Inverter)

IC002 (Inverter)

Pin No.	Symbol	In/Out	Function
1	1A	In	GND
2	1Y	Out	N.C
3	2A	In	GND
4	2Y	Out	N.C
5	3A	In	GND
6	3Y	Out	N.C
7	GND	---	GND
8	4Y	Out	12 MHz Clock Output
9	4A	In	Crystal Connect
10	5Y	Out	Crystal Connect
11	5A	In	Crystal Connect
12	6Y	Out	N.C
13	6A	In	GND
14	VCC	---	+5V

8.2.3. IC003 (Comparator)

IC003 (Comparator)

Pin No.	Symbol	In/Out	Function
1	B OUT	OUT	Fuser Enable
2	A OUT	OUT	Door Open
3	Vcc	---	+5V
4	A-IN	IN	Detection Voltage
5	A+IN	IN	+24V IR Detection
6	B-IN	IN	Thermistor Signal
7	B+IN	IN	Detection Voltage
8	C-IN	IN	Feed Back of Fan Power
9	C+IN	IN	Fan Control Voltage
10	D-IN	IN	GND
11	D+IN	IN	GND
12	GND	---	GND
13	D OUT	OUT	N.C
14	C OUT	OUT	Fan Power Control Signal

8.2.4. IC005 (Reset IC)

IC005 (Reset IC)

Pin No.	Symbol	In/Out	Function
1	GND	-	GND
2	VDD	-	+5V
3	CD	-	Delay Capacitor
4	RESET	Out	Reset Signal

8.2.5. IC006 (Engine Control CPU)

IC006 (Engine Control CPU)

Pin No.	Symbol	In/Out	Function
1	UI2	In	Serial Data In
2	MOD2	-	GND
3	AN0	In	Thermistor voltage detect
4	P51	In	Toner Empty Sensor
5	P52	Out	Scanner motor control signal
6	P53	Out	Fan motor control signal
7	P54	Out	Toner Empty LED control signal
8	P55	Out	Charger control signal
9	P56	Out	Dev. bias channel signal
10	P57	Out	Transfer bias control signal
11	AVCC	-	+5V
12	AVR	-	+5V
13	AVSS	-	GND
14	INT10	In	Hsync signal
15	P61	In	Regist Sensor signal
16	INT12	In	Top sensor signal
17	P63	In	Door Open signal
18	P64	In	Fan motor error signal
19	nRST	In	System reset
20	MOD0	-	GND
21	MOD1	-	GND
22	X0	In	System clock
23	X1	-	N.C.
24	VSS	-	GND
25	P27	Out	Main Motor Control
26	P26	Out	Motor Rotation Speed Control
27	P25	Out	EEPROM data out
28	P24	Out	EEPROM clock
29	P23	Out	EEPROM chip select
30	PPGO2	Out	Scanner motor clock
31	PPGO1	Out	Fuser control signal
32	P20	Out	+5V control signal

Pin No.	Symbol	In/Out	Function
33	P17	In	EEPROM data in
34	P16	In	Main Motor Lock
35	P15	In	Paper empty signal
36	P14	In	Scanner Motor Lock
37	P13	In	2nd Feeder paper empty signal
38	P12	In	2nd Feeder detection signal
39	P11	In	EEPROM initialize signal
40	P10	In	Exit sensor signal
41	P07	Out	Pick up control signal
42	P06	Out	Regist control signal
43	P05	Out	Exit control signal
44	P04	Out	Printer Ready signal
45	P03	Out	2nd Feeder pickup control signal
46	P02	Out	Purge signal
47	P01	Out	Status busy signal
48	P00	Out	Top signal
49	C	-	Capacitor
50	P30	In	Process Unit Detection
51	SCK1	In	Communication clock
52	SO1	Out	Status data signal
53	SI1	In	Command data signal
54	PTO2	Out	Dev. bias PWM signal
55	P35	In	Print signal
56	VCC	-	+5V
57	WTO	In	Command busy signal
58	PTO1	Out	Transfer bias PWM signal
59	INT20	In	Power save signal
60	P41	Out	ASIC Serial clock
61	P42	Out	ASIC Serial data out
62	P43	In	ASIC Serial data in
63	P44	Out	ASIC Chip select
64	U02	Out	Serial Data Out

8.2.6. IC007 (EEPROM)

IC007 (EEPROM)

Pin No.	Symbol	In/Out	Function
1	CS	In	Chip Select Signal
2	SK	In	Serial Clock
3	DI	In	Data Input
4	DO	Out	Data Output
5	GND	-	GND
6	TEST	-	Test terminal (not used)
7	NC	-	N.C.
8	VCC	-	+5 V

8.2.7. IC009 (AND Gate)

IC009 (AND Gate)

Pin No.	Symbol	In/Out	Function
1	IN B	In	Video Signal In
2	IN A	In	Video Signal In
3	GND	-	GND
4	OUT Y	Out	Video Signal Out
5	Vcc	-	+5V through OPC Drum Unit Interlock Switch

9 Preventative Maintenance

9.1. General

The preventative maintenance (PM) schedule is every 2,000 impressions. Adhering to this schedule will ensure maximum print quality and reduce machine downtime and service calls.

9.2. Recommended Tools

The following tools are recommended.

1. Toner vacuum cleaner
2. Blower brush
3. Cleaning alcohol
4. Cleaning cotton
5. Cotton swabs

9.3. Recommended Cleaning

1. Remove the OPC Drum Unit.

Caution :

When the OPC Drum Unit is removed, keep it covered to prevent light shock. Do not touch the OPC drum surface.

2. Vacuum the inside of the machine after removing the OPC Drum Unit. Temporarily store the OPC Drum Unit in the protective bag.
3. Clean the rollers (feed roller, pickup roller) with alcohol.

Caution :

Do not use thinner or solvents; they will damage rubber and plastic components.

4. Clean the corona with a blower brush.
5. Clean the LSU cover glass with a dry lint-free cloth.

9.4. Maintenance Tables

9.4.1. User Maintenance

Replace these items according to the following schedule :

(x 1000 pages)

Item	Service															
	2	7	12	17	20	22	27	32	37	40	42	47	52	57	....	180
Toner Cartridge *1	R	R	R	R		R	R	R	R		R	R	R	R		
OPC Drum Unit *1					R	R				R						R

R: Replace

*1 Refer to Section 1.1.3 for the Model No. of Supplies.

When print is faded or indicators show the following status, the replacement of a supply is needed.

Printer components	Indicators		Message of printer status display	Average life
	ERROR	TONER/ DRUM UNIT		
Toner cartridge *3	off	blinking	Low Toner Charge the toner cartridge.	—
	blinking	on	Toner Empty Replace the toner cartridge.	5,000 pages *1, *2
OPC Drum unit *3	off	blinking	Change Drum Unit Charge the drum unit.	—
	blinking	on	Drum Unit Worn out Replace the drum unit.	20,000 pages

: on
: off
: blinking

*1 Refer to Section 9.4.2.1.

*2 The toner cartridge provided with the printer is a starter kit toner cartridge, which has less toner. (The page life expectancy is 2,000 pages.)

*3 Refer to Section 1.1.3 for the Model No. of Supllies.

9.4.2. Service Maintenance

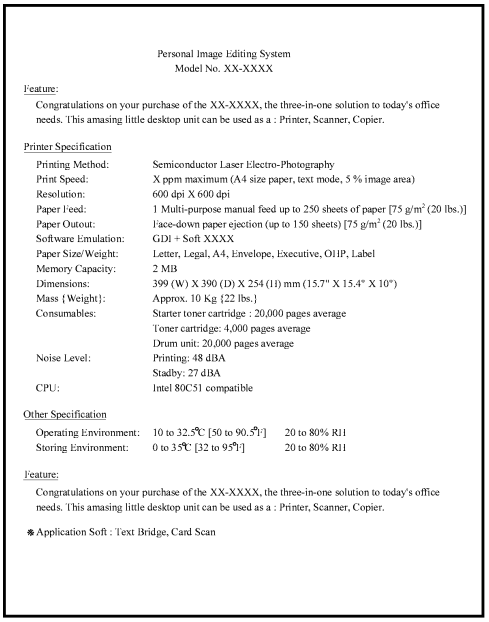
9.4.2.1. Maintenance Cycle

The following table shows the service cycle of the main parts.

Item	Average Life	Service (x 1000 pages)					
		18	36	54	72	85	108
Fuser Unit	85,000 pages *1					R	
Transfer Roller	85,000 pages *1					R	
Pickup Roller	85,000 pages					R	

R: Replace (Service Man Replaceable)

*1 Average life is based on an average of 5% coverage of the printable area and standard density when the recommended media is used (refer to Example: 5% coverage). The life of a toner cartridge is varied depending on the coverage, temperature, humidity or media etc. So the average life cannot be assured. Continuously printing 10% coverage of the printable area will reduce the life of the toner to about half as compared to printing 5% coverage.



Personal Image Editing System
Model No. XX-XXXX

Feature:

Congratulations on your purchase of the XX-XXXX, the three-in-one solution to today's office needs. This amasing little desktop unit can be used as a : Printer, Scanner, Copier.

Printer Specification

Printing Method:	Semiconductor Laser Electro-Photography
Print Speed:	X ppm maximum (A4 size paper, text mode, 5 % image area)
Resolution:	600 dpi X 600 dpi
Paper Feed:	1 Multi-purpose manual feed up to 250 sheets of paper [75 g/m² (20 lbs.)]
Paper Outout:	Face-down paper ejection (up to 150 sheets) [75 g/m² (20 lbs.)]
Software Emulation:	GDI + Soft XXXX
Paper Size/Weight:	Letter, Legal, A4, Envelope, Executive, OHP, Label
Memory Capacity:	2 MB
Dimensions:	399 (W) X 390 (D) X 254 (H) mm (15.7" X 15.4" X 10")
Mass {Weight}:	Approx. 10 Kg {22 lbs.}
Consumables:	Starter toner cartridge : 20,000 pages average Toner cartridge: 4,000 pages average Drum unit: 20,000 pages average
Noise Level:	Printing: 48 dBA Stadby: 27 dBA
CPU:	Intel 80C51 compatible

Other Specification

Operating Environment:	10 to 32.5°C [50 to 90.5°F]	20 to 80% RH
Storing Environment:	0 to 35°C [32 to 95°F]	20 to 80% RH

Feature:

Congratulations on your purchase of the XX-XXXX, the three-in-one solution to today's office needs. This amasing little desktop unit can be used as a : Printer, Scanner, Copier.

※Application Soft : Text Bridge, Card Scan

9.4.2.2. Lubrication

Lubricate the following parts when they are replaced or cleaned :

Part	Lubrication Point
Fuser Unit	Drive Gear, Intermediate Gear, Gear shaft
Main Chassis	Drive Gear, Gear Shaft

Refer to the part list for locations.

9.4.2.3. Recommended Lubrication

Lubricate the following parts when they are replaced or cleaned :

Part Number	Name	Main Part
PJOL-HP500	Grease	Drive Gear
GL-YM-103	Grease	OPC Gear Fuser Gear
PJOL-GE676	Grease	Feed Roller
PJOL-948P	Oil	Roller Shaft
GL-EMD110	Grease	Cassette

9.4.3. Counter Reset

You are able to reset the counter of the following items, when they are replaced.

Item	Counter Reset
OPC Drum Unit (KX-PDM7)	Press the **PRINT/RESET** button more than 20 seconds. (The error indicator will go off.)

10 Troubleshooting

10.1. Self-Diagnostic Indicators

The printer indicates error conditions using the ON, OFF and blinking states of the Ready, Error and Toner/Drum unit LED indicators.

The printer status and error code are displayed on the printer status display on the host computer screen. The Status Display software must be installed on the computer.

10.1.1. Printer Status

LED Indicator	Printer Status Display	Possible Cause	Recovery
READY ERROR TONER/ DRUM UNIT	Power Off or Cable Problem or Printer Busy	The printer is off.	Turn the power on or check that cable is installed correctly.
		The printer cable is not installed correctly.	
		The cable is damaged.	
		While printing from other PC.	
READY ERROR TONER/ DRUM UNIT	Warming Up	Printer is warming up (three LED indicators light one after another).	No action.
READY ERROR * TONER/ DRUM UNIT	Ready	Printer is ready printing or in the sleep mode.	No action.
	Ready (Sleep)		
READY ERROR * TONER/ DRUM UNIT	Printing	Printer is receiving data printing.	No action.

: on

: off

: blinking

* The status varies depending on the condition.

10.1.2. Paper Jam

LED Indicator	Printer Status Display	Possible Cause	Recovery
READY *1 ERROR TONER/DRUM UNIT	Jam at A, B, C, D, E, OP, STD	Media Jam has occurred.	Remove the jammed media, then open the front cover and close it. (See Section 10.5.)
READY *2 ERROR TONER/DRUM UNIT	Manual Feed Empty	Media tray is empty.	Load media in the manual feed.

Off Blinking *1 (On : 0.5 sec, Off : 2 sec), *2 (On : 1 sec, Off : 0.5 sec)

10.1.3. User Error

LED Indicator	Printer Status Display	Possible Cause	Recovery
READY *1 ERROR TONER/ DRUM UNIT	Front Cover Open	Front cover is open.	Close the front cover.
	Overrun	Overrun has occurred and cannot execute the current print job.	Press the **PRINT / RESET** button (less than 5 seconds) to delete the current print job. (It is improved if Option RAM is added.)
	Memory Overflow	RAM overflow has occurred and cannot execute the current print job.	
READY *2 ERROR TONER/ DRUM UNIT	All Media Tray Empty	Media is empty. Media tray is not installed	Load media in the media tray. Install media tray.
	Lower Tray Empty		
	Upper (Media) Tray Empty		
* READY ERROR TONER/ DRUM UNIT	Low Toner	The toner is low.	Replace the toner cartridge soon.
	Change Drum Unit	Drum unit is wearing out.	Replace the drum unit soon, then press the **PRINT / RESET** button more than 20 seconds. (The error indicator will go off.)
READY ERROR TONER/ DRUM UNIT	Toner Empty	The toner is empty.	Replace the toner cartridge now.
	Drum Unit Missing	Drum unit is not installed.	Install the drum unit.
	Drum Unit Worn out	Drum unit is worn out.	Replace the drum unit now, then press the **PRINT / RESET** button more than 20 seconds. (The error indicator will go off.)

■ : on

□ : off

↘↓↙ ■ : blinking *1 (On : 0.5 sec, Off : 0.5 sec), *2 (On : 1 sec, Off : 1 sec)

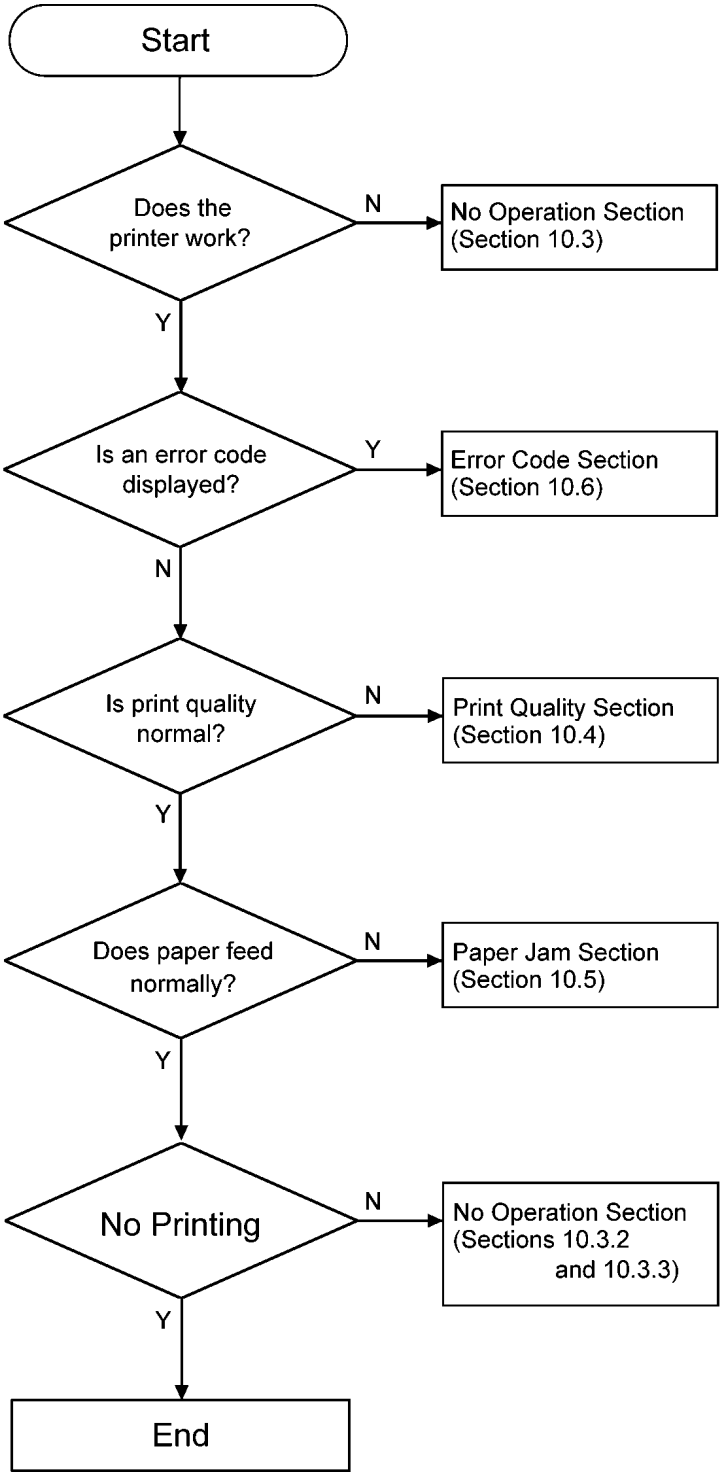
* The status varies depending on the condition.

10.1.4. Call for Service

LED Indicator	Printer Status Display	Possible Cause	Recovery
READY ERROR TONER/ DRUM UNIT	Call for Service (Code : E20)	Scanner Motor is not rotating properly. Or HSYNC Signal is not detected.	See Section 10.6.1.
	Call for Service (Code : E30)	Fuser temperature is over correct range.	See Section 10.6.2.
	Call for Service (Code : E31)	1.Fuser temperature does not reach to 100°C within 30 sec., or it is less than 155°C during warm up. 2.Fuser temperature does not return to target temperature within 30 sec. after becoming lower than the target.	See Section 10.6.3.
	Call for Service (Code : E32)	Fuser thermistor is disconnected or open.	See Section 10.6.4.
	Call for Service (Code : E50)	Fan Motor is not rotating properly.	See Section 10.6.5.
	Call for Service (Code : E54)	Controller CPU program ROM checksum error occurred at power on.	See Section 10.6.6.
	Call for Service (Code : E63)	Main Motor is not rotating properly.	See Section 10.6.7.
	Call for Service (Code : E71)	Read/Write error of EEPROM	See Section 10.6.8.
	Call for Service (Code : E73)	Parity error occurs or no response comes back from engine CPU.	See Section 10.6.9.
	Call for Service (Code : E81)	Controller RAM check error has occurred at power on.	See Section 10.6.10.
	Call for Service (Code : E90)	Controller EEPROM check error has occurred.	See Section 10.6.11.

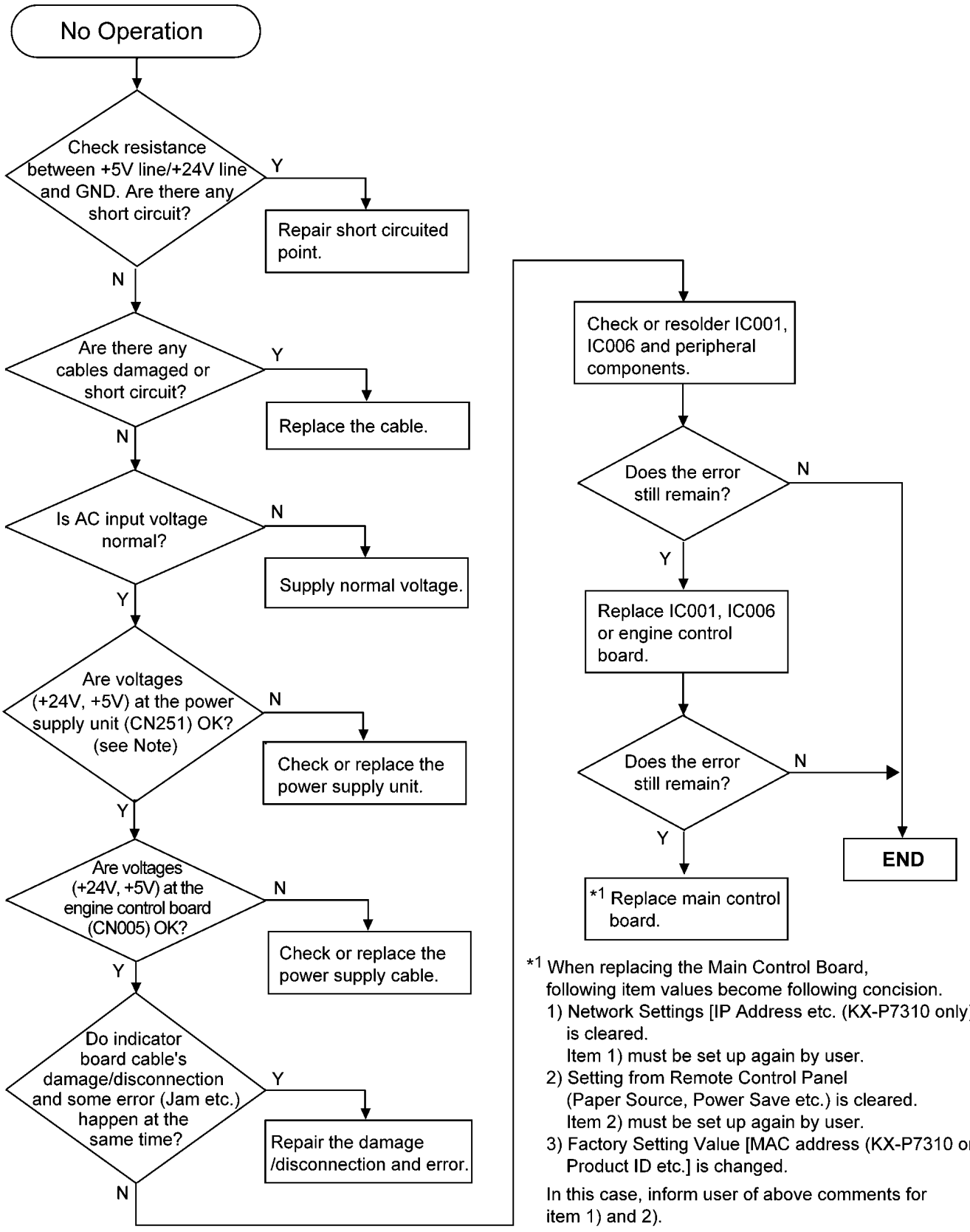
: on
: off

10.2. Initial Troubleshooting Flowchart



10.3. No Operation

10.3.1. No Operation

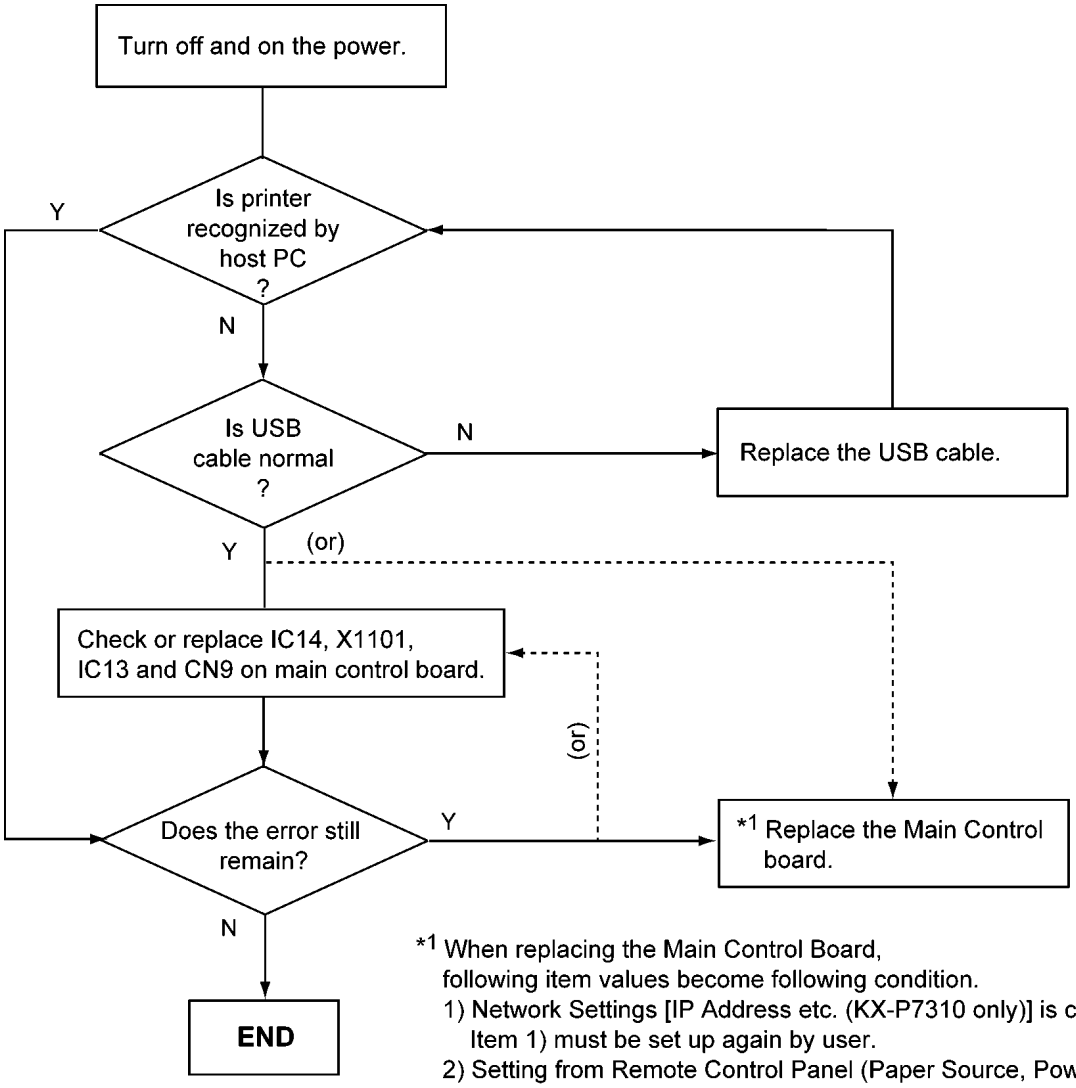

No Operation
Check resistance between +5V line/+24V line and GND. Are there any short circuit?
Y
Repair short circuited point.
N
Are there any cables damaged or short circuit?
Y
Replace the cable.
N
Is AC input voltage normal?
N
Supply normal voltage.
Y
Are voltages (+24V, +5V) at the power supply unit (CN251) OK? (see Note)
N
Check or replace the power supply unit.
Y
Are voltages (+24V, +5V) at the engine control board (CN005) OK?
N
Check or replace the power supply cable.
Y
Do indicator board cable's damage/disconnection and some error (Jam etc.) happen at the same time?
Y
Repair the damage /disconnection and error.
N
Check or resolder IC001, IC006 and peripheral components.
Does the error still remain?
N
Y
Replace IC001, IC006 or engine control board.
Does the error still remain?
N
Y
*1 Replace main control board.
END

*1 When replacing the Main Control Board, following item values become following concision.

1) Network Settings [IP Address etc. (KX-P7310 only)] is cleared.
   Item 1) must be set up again by user.
2) Setting from Remote Control Panel (Paper Source, Power Save etc.) is cleared.
   Item 2) must be set up again by user.
3) Factory Setting Value [MAC address (KX-P7310 only), Product ID etc.] is changed.

In this case, inform user of above comments for item 1) and 2).

10.3.2. No Printing: Using USB Interface

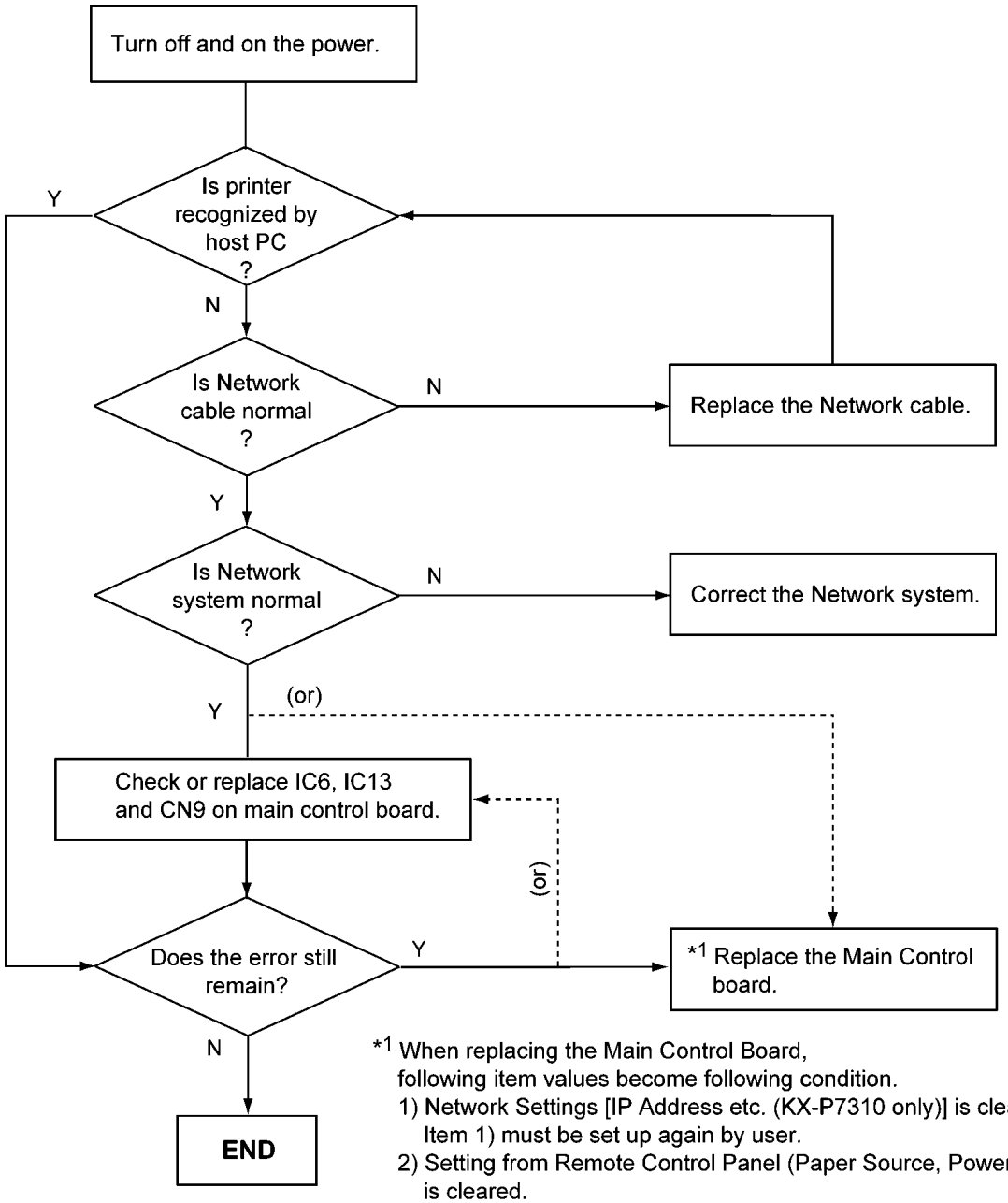


*1 When replacing the Main Control Board,
following item values become following condition.

1) Network Settings [IP Address etc. (KX-P7310 only)] is cleared.
   Item 1) must be set up again by user.
2) Setting from Remote Control Panel (Paper Source, Power Save etc.) is cleared.
   Item 2) must be set up again by user.
3) Factory Setting Value [MAC address (KX-P7310 only), Product ID etc.] is changed.

In this case, inform user of above comments for item 1) and 2).

10.3.3. No Printing: Using Network Interface

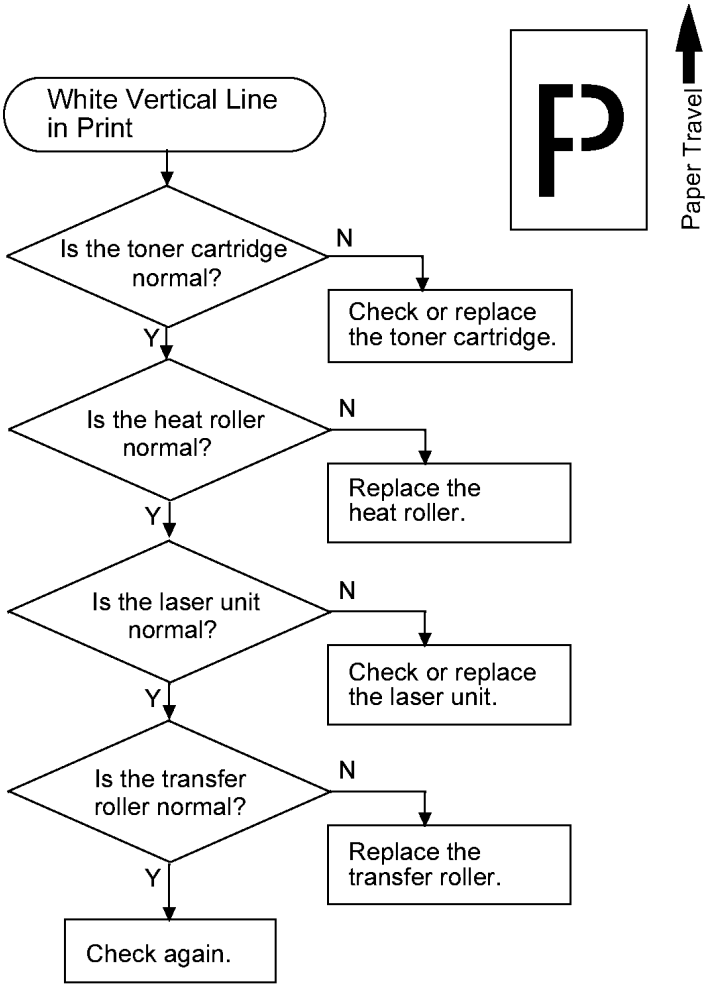


*1 When replacing the Main Control Board,
following item values become following condition.
1) Network Settings [IP Address etc. (KX-P7310 only)] is cleared.
Item 1) must be set up again by user.
2) Setting from Remote Control Panel (Paper Source, Power Save etc.) is cleared.
Item 2) must be set up again by user.
3) Factory Setting Value [MAC address (KX-P7310 only), Product ID etc.] is changed.

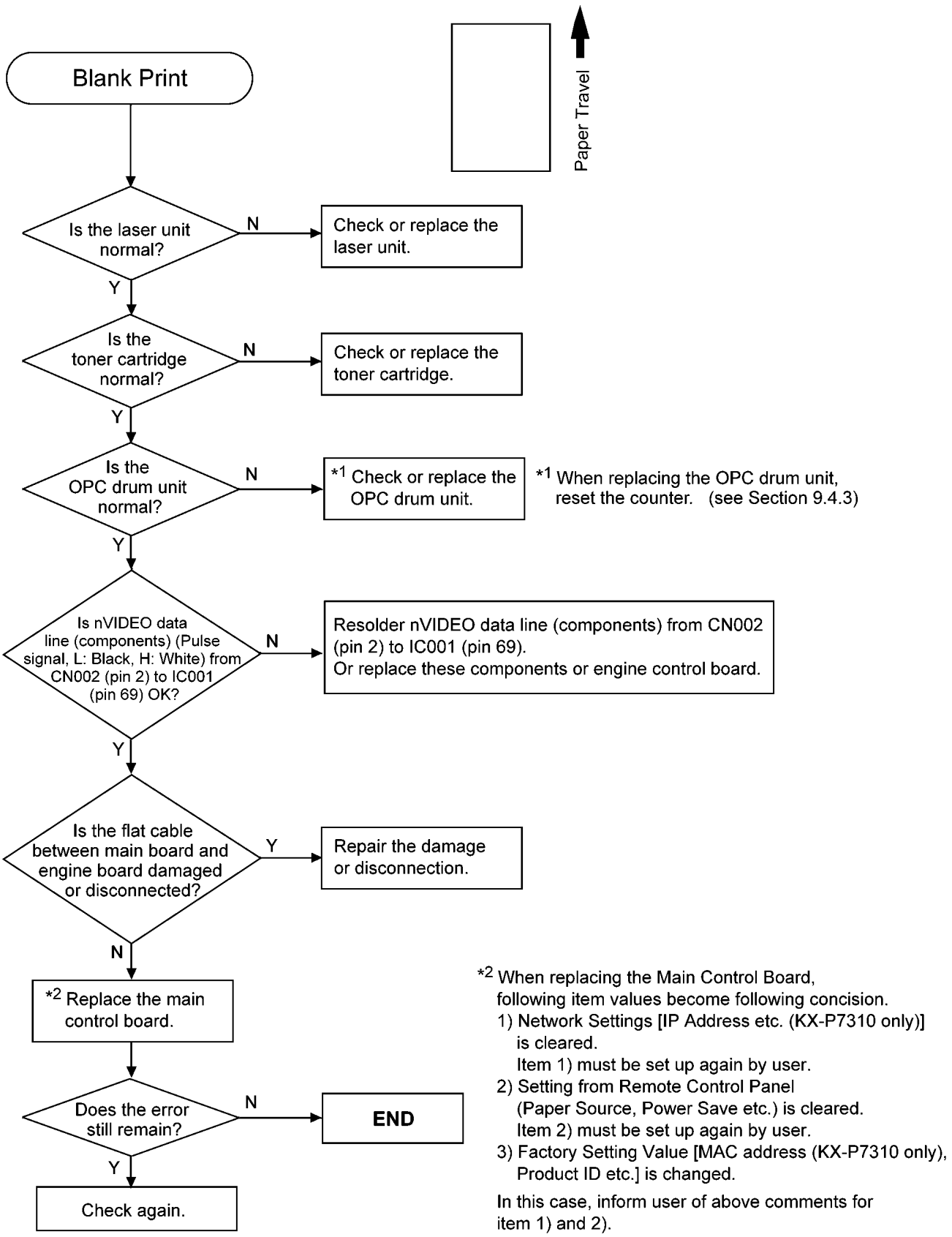
In this case, inform user of above comments for item 1) and 2).

10.4. Print Quality

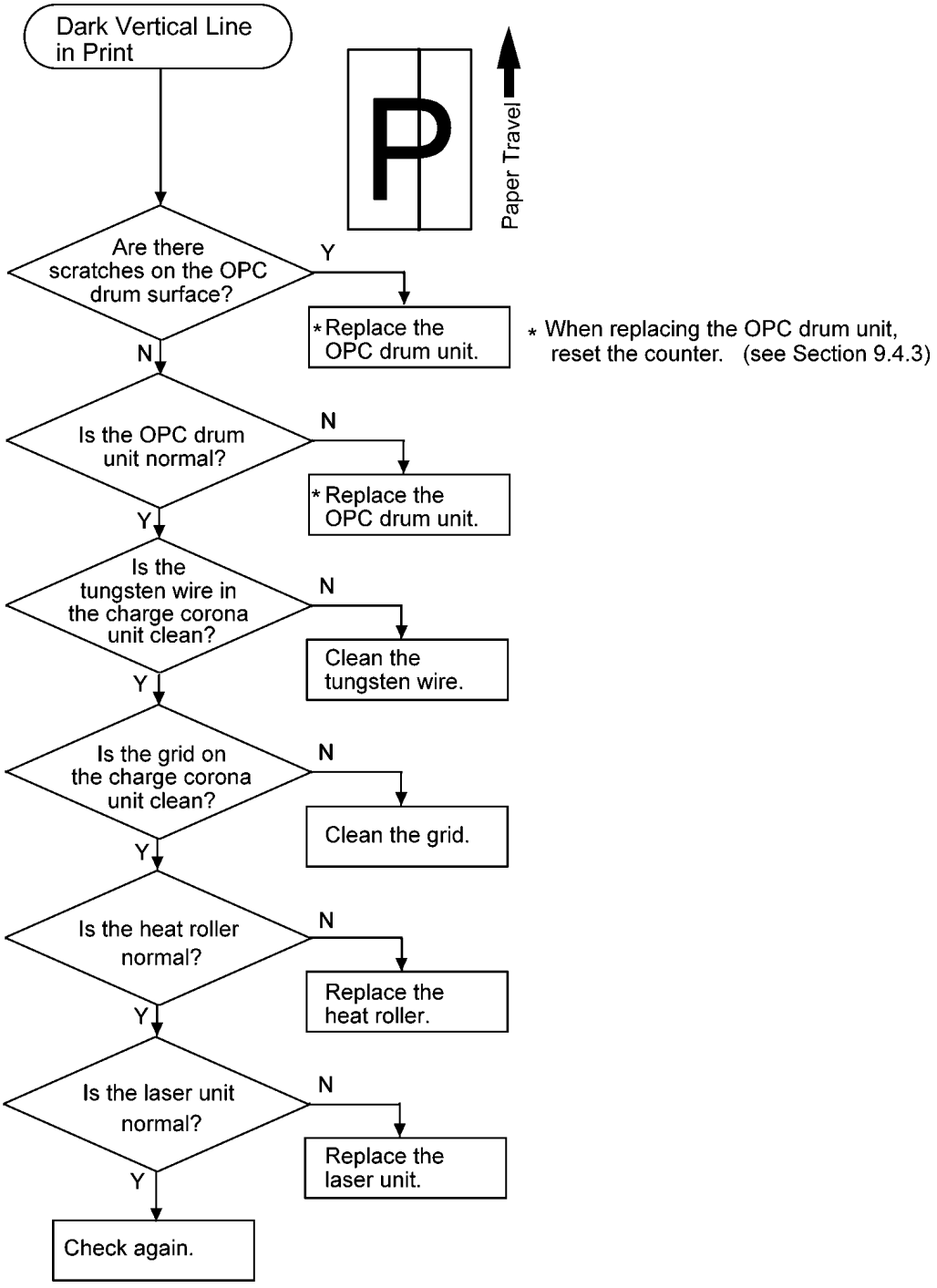
10.4.1. White Vertical Line in Print



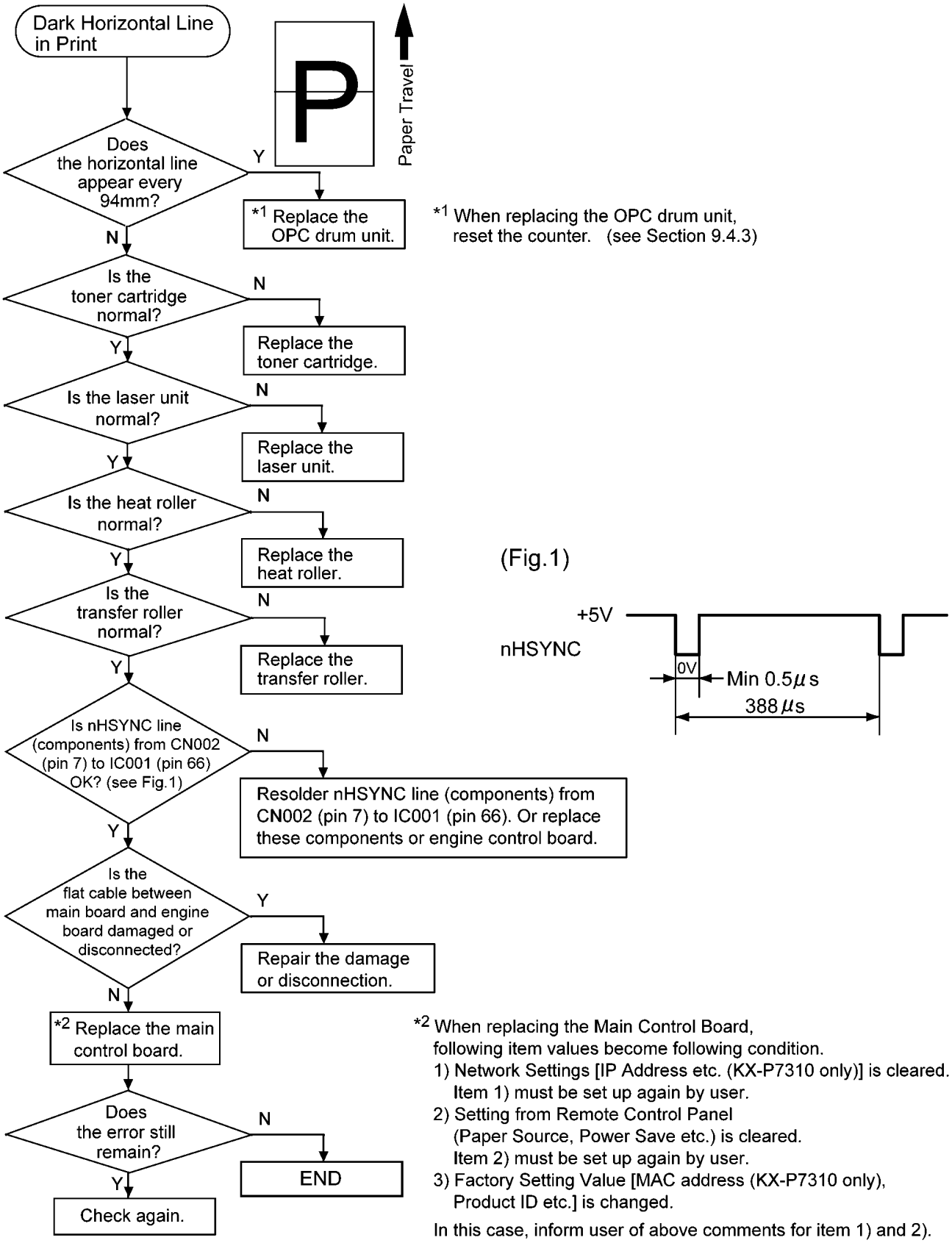
10.4.2. Blank Print


Blank Print
Paper Travel
Is the laser unit normal?
N
Check or replace the laser unit.
Y
Is the toner cartridge normal?
N
Check or replace the toner cartridge.
Y
Is the OPC drum unit normal?
N
*1 Check or replace the OPC drum unit.
*1 When replacing the OPC drum unit, reset the counter. (see Section 9.4.3)
Y
Is nVIDEO data line (components) (Pulse signal, L: Black, H: White) from CN002 (pin 2) to IC001 (pin 69) OK?
N
Resolder nVIDEO data line (components) from CN002 (pin 2) to IC001 (pin 69).
Or replace these components or engine control board.
Y
Is the flat cable between main board and engine board damaged or disconnected?
Y
Repair the damage or disconnection.
N
*2 Replace the main control board.
Does the error still remain?
N
END
Y
Check again.
*2 When replacing the Main Control Board, following item values become following concision.
1) Network Settings [IP Address etc. (KX-P7310 only)] is cleared.
Item 1) must be set up again by user.
2) Setting from Remote Control Panel (Paper Source, Power Save etc.) is cleared.
Item 2) must be set up again by user.
3) Factory Setting Value [MAC address (KX-P7310 only), Product ID etc.] is changed.
In this case, inform user of above comments for item 1) and 2).

10.4.3. Dark Vertical Line in Print



10.4.4. Dark Horizontal Line in Print



*1 When replacing the OPC drum unit, reset the counter. (see Section 9.4.3)

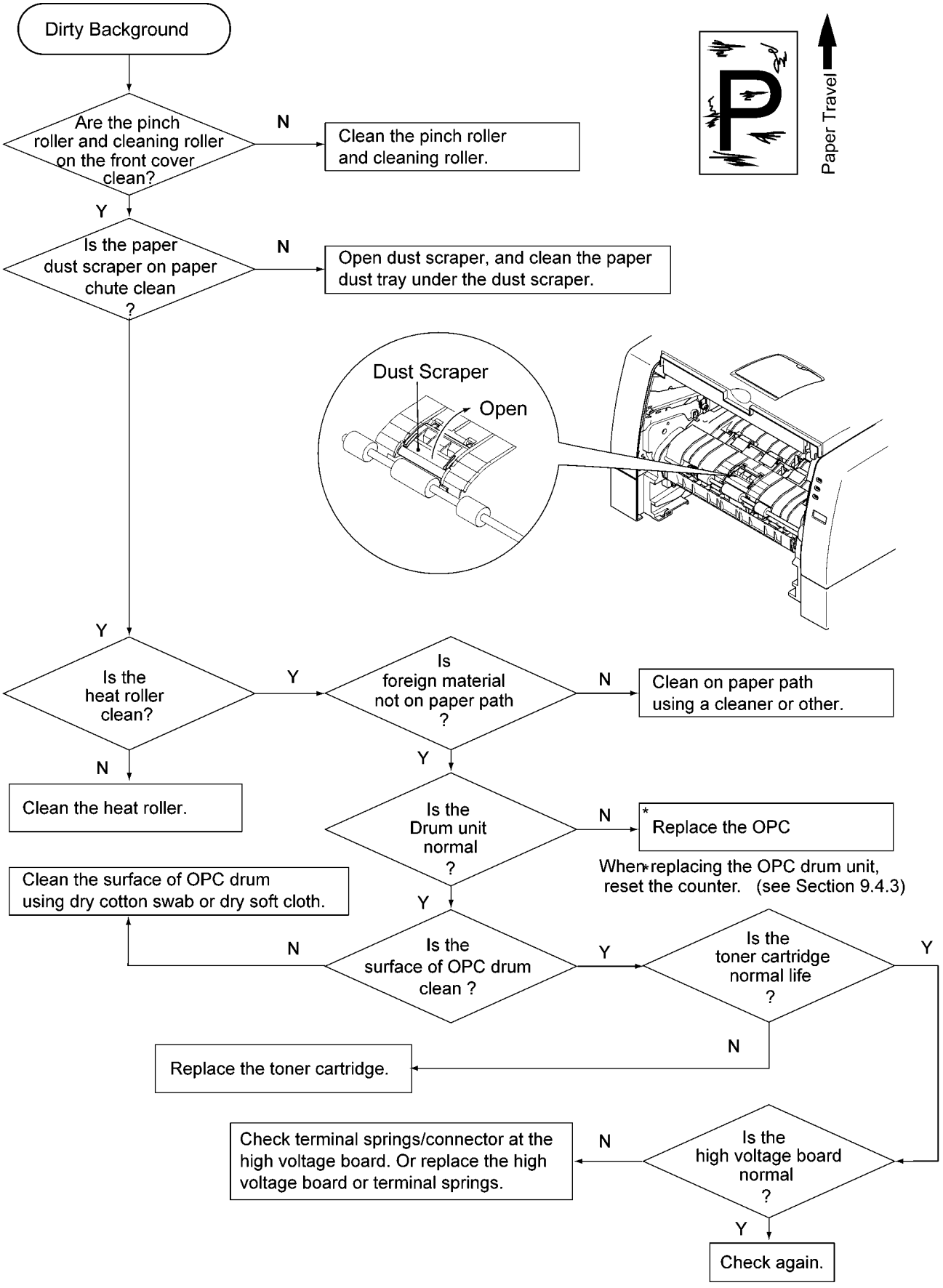
(Fig.1)

*2 When replacing the Main Control Board, following item values become following condition.

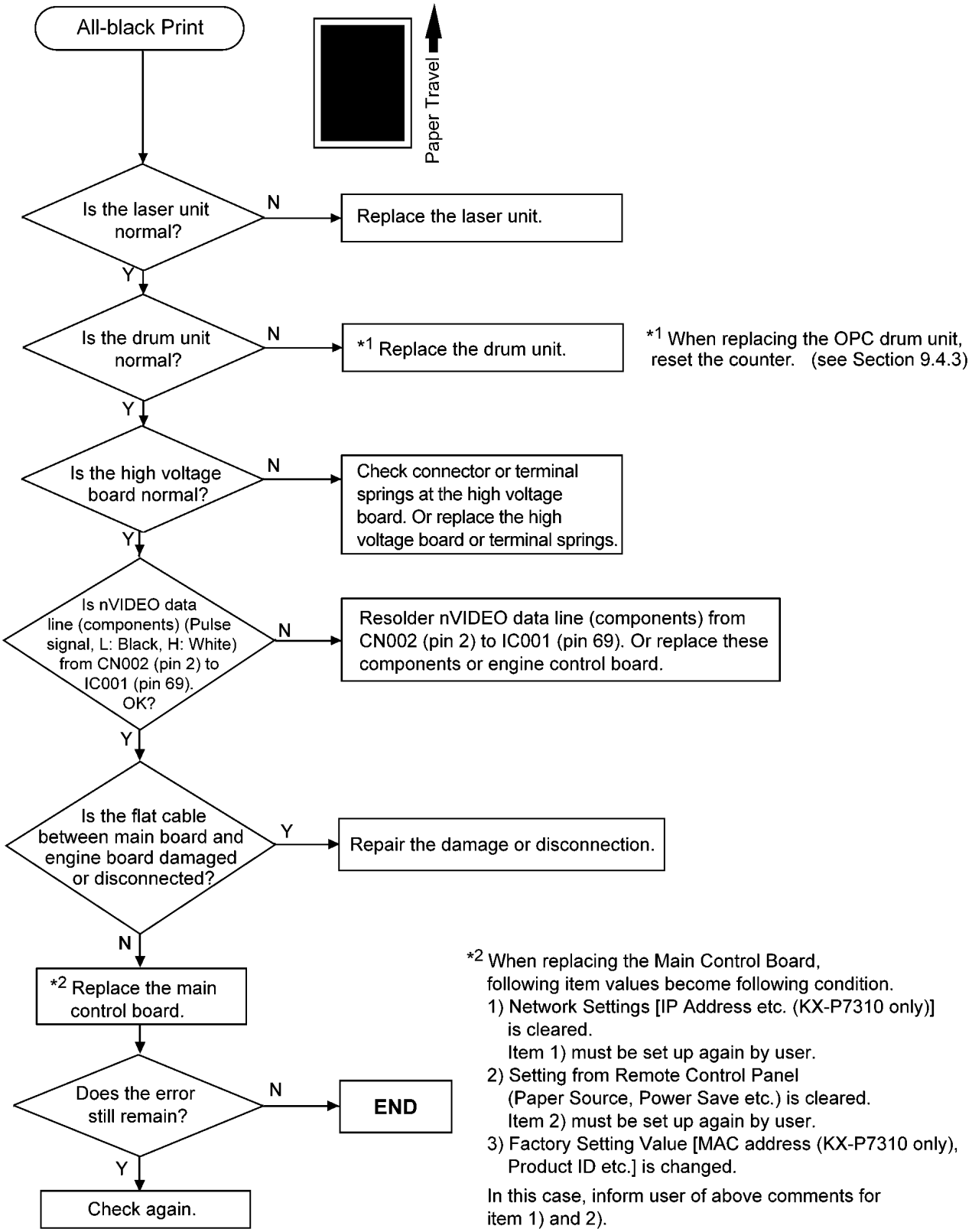
1) Network Settings [IP Address etc. (KX-P7310 only)] is cleared. Item 1) must be set up again by user.
2) Setting from Remote Control Panel (Paper Source, Power Save etc.) is cleared. Item 2) must be set up again by user.
3) Factory Setting Value [MAC address (KX-P7310 only), Product ID etc.] is changed.

In this case, inform user of above comments for item 1) and 2).

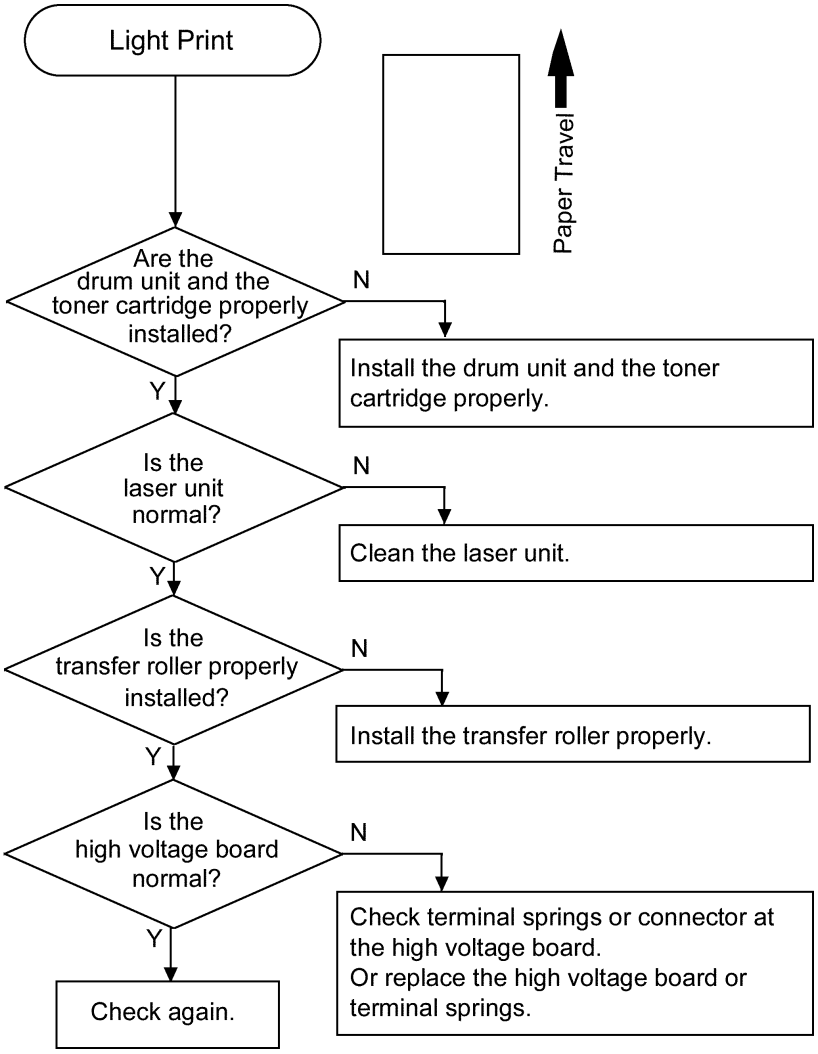
10.4.5. Dirty Background


Dirty Background
Are the pinch roller and cleaning roller on the front cover clean?
N
Clean the pinch roller and cleaning roller.
Y
Is the paper dust scraper on paper chute clean ?
N
Open dust scraper, and clean the paper dust tray under the dust scraper.
Paper Travel
Dust Scraper
Open
Y
Is the heat roller clean?
Y
Is foreign material not on paper path ?
N
Clean on paper path using a cleaner or other.
N
Clean the heat roller.
Y
Is the Drum unit normal ?
N
* Replace the OPC
When replacing the OPC drum unit, reset the counter. (see Section 9.4.3)
Clean the surface of OPC drum using dry cotton swab or dry soft cloth.
Y
Is the surface of OPC drum clean ?
N
Y
Is the toner cartridge normal life ?
Y
N
Replace the toner cartridge.
Check terminal springs/connector at the high voltage board. Or replace the high voltage board or terminal springs.
N
Is the high voltage board normal ?
Y
Check again.

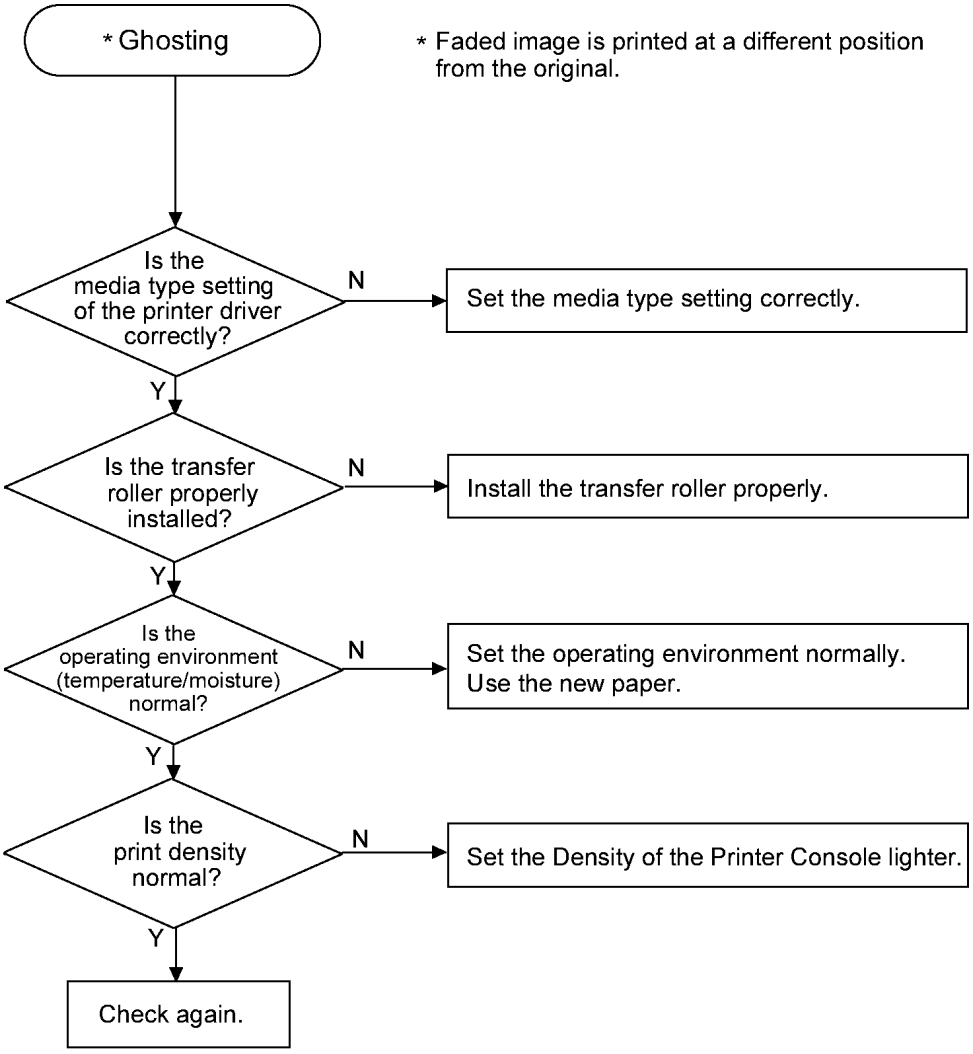
10.4.6. All-black Print


All-black Print
Paper Travel
Is the laser unit normal?
N
Replace the laser unit.
Y
Is the drum unit normal?
N
*1 Replace the drum unit.
*1 When replacing the OPC drum unit, reset the counter. (see Section 9.4.3)
Y
Is the high voltage board normal?
N
Check connector or terminal springs at the high voltage board. Or replace the high voltage board or terminal springs.
Y
Is nVIDEO data line (components) (Pulse signal, L: Black, H: White) from CN002 (pin 2) to IC001 (pin 69). OK?
N
Resolder nVIDEO data line (components) from CN002 (pin 2) to IC001 (pin 69). Or replace these components or engine control board.
Y
Is the flat cable between main board and engine board damaged or disconnected?
Y
Repair the damage or disconnection.
N
*2 Replace the main control board.
Does the error still remain?
N
END
Y
Check again.
*2 When replacing the Main Control Board, following item values become following condition.
1) Network Settings [IP Address etc. (KX-P7310 only)] is cleared.
Item 1) must be set up again by user.
2) Setting from Remote Control Panel (Paper Source, Power Save etc.) is cleared.
Item 2) must be set up again by user.
3) Factory Setting Value [MAC address (KX-P7310 only), Product ID etc.] is changed.
In this case, inform user of above comments for item 1) and 2).

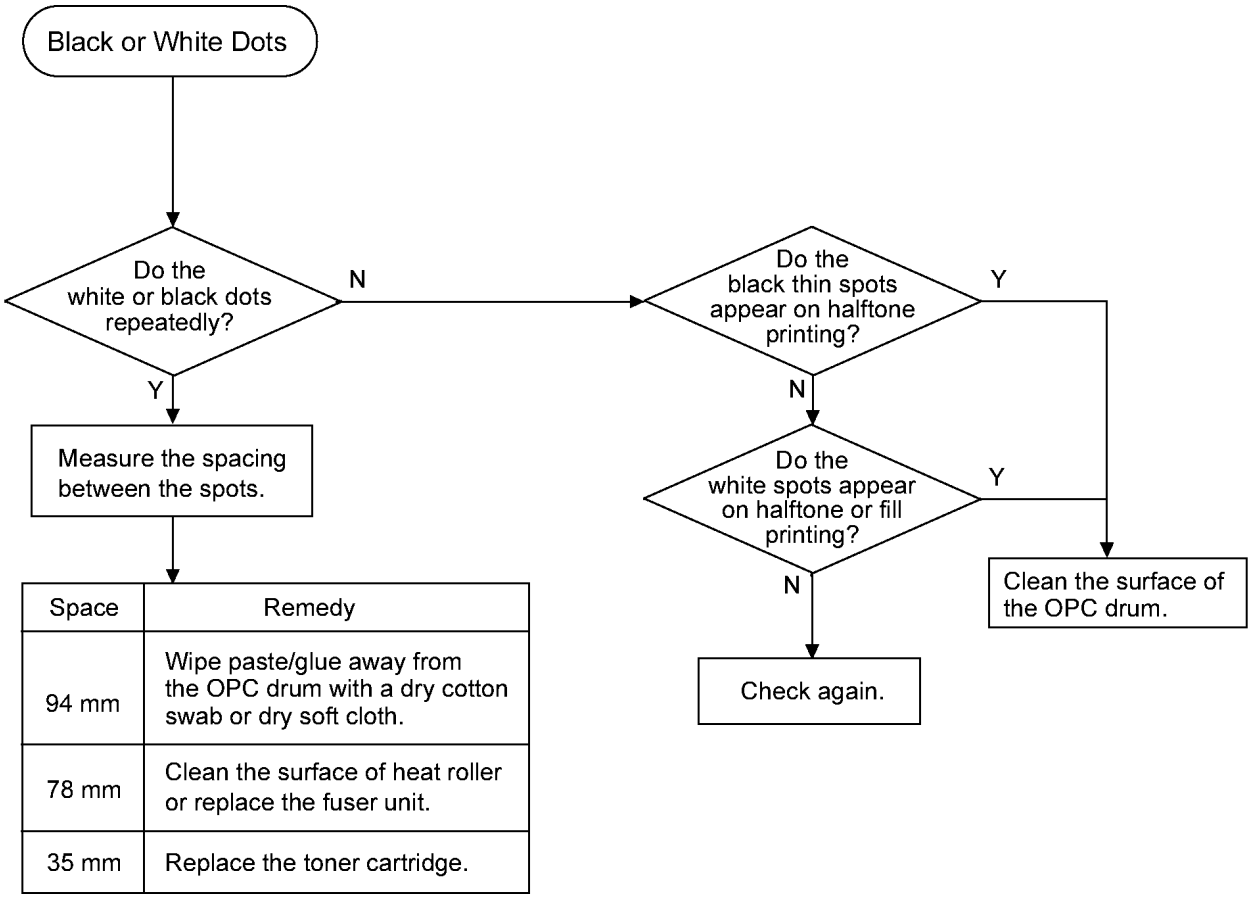
10.4.7. Light Print



10.4.8. Ghosting

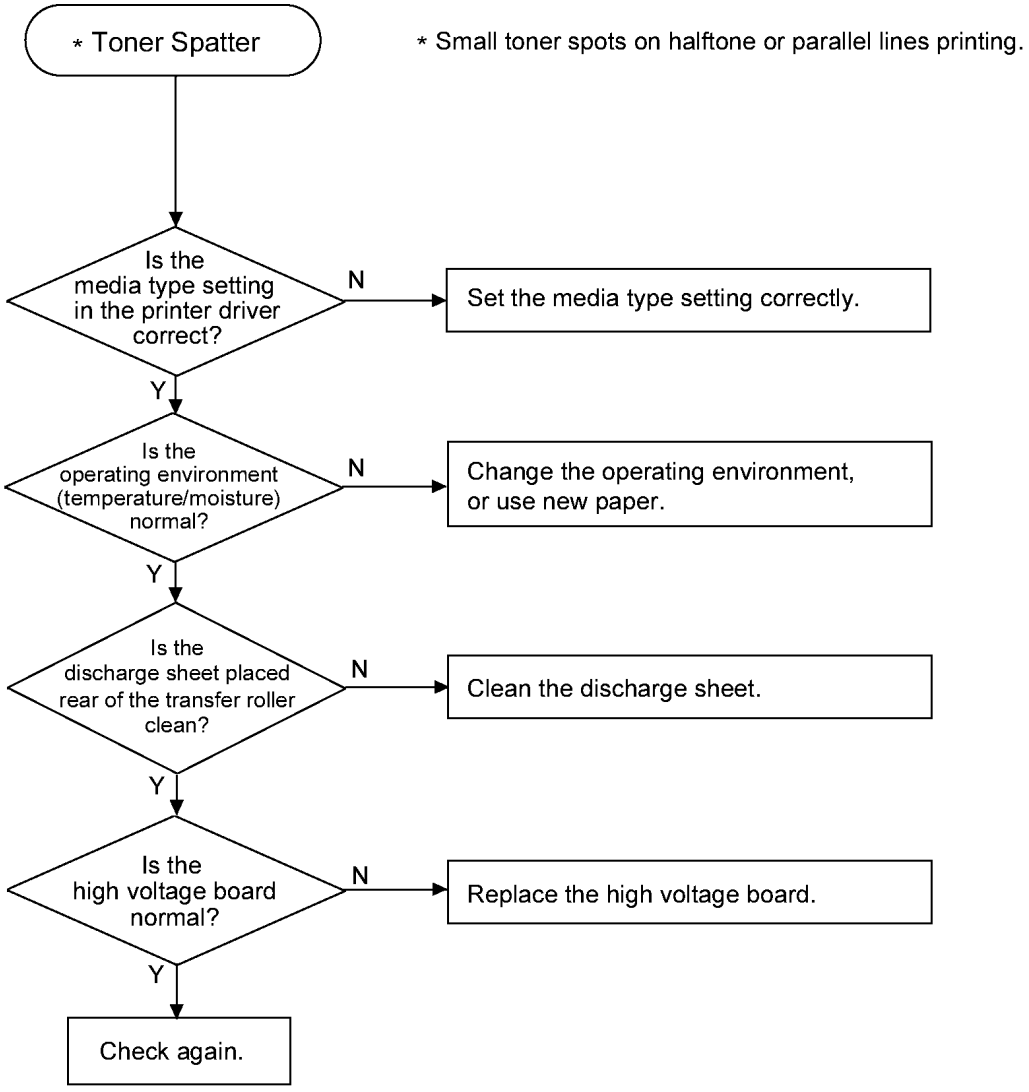

* Ghosting
* Faded image is printed at a different position from the original.
Is the media type setting of the printer driver correctly?
N
Set the media type setting correctly.
Y
Is the transfer roller properly installed?
N
Install the transfer roller properly.
Y
Is the operating environment (temperature/moisture) normal?
N
Set the operating environment normally.
Use the new paper.
Y
Is the print density normal?
N
Set the Density of the Printer Console lighter.
Y
Check again.

10.4.9. Black or White Dots



Space	Remedy
94 mm	Wipe paste/glue away from the OPC drum with a dry cotton swab or dry soft cloth.
78 mm	Clean the surface of heat roller or replace the fuser unit.
35 mm	Replace the toner cartridge.

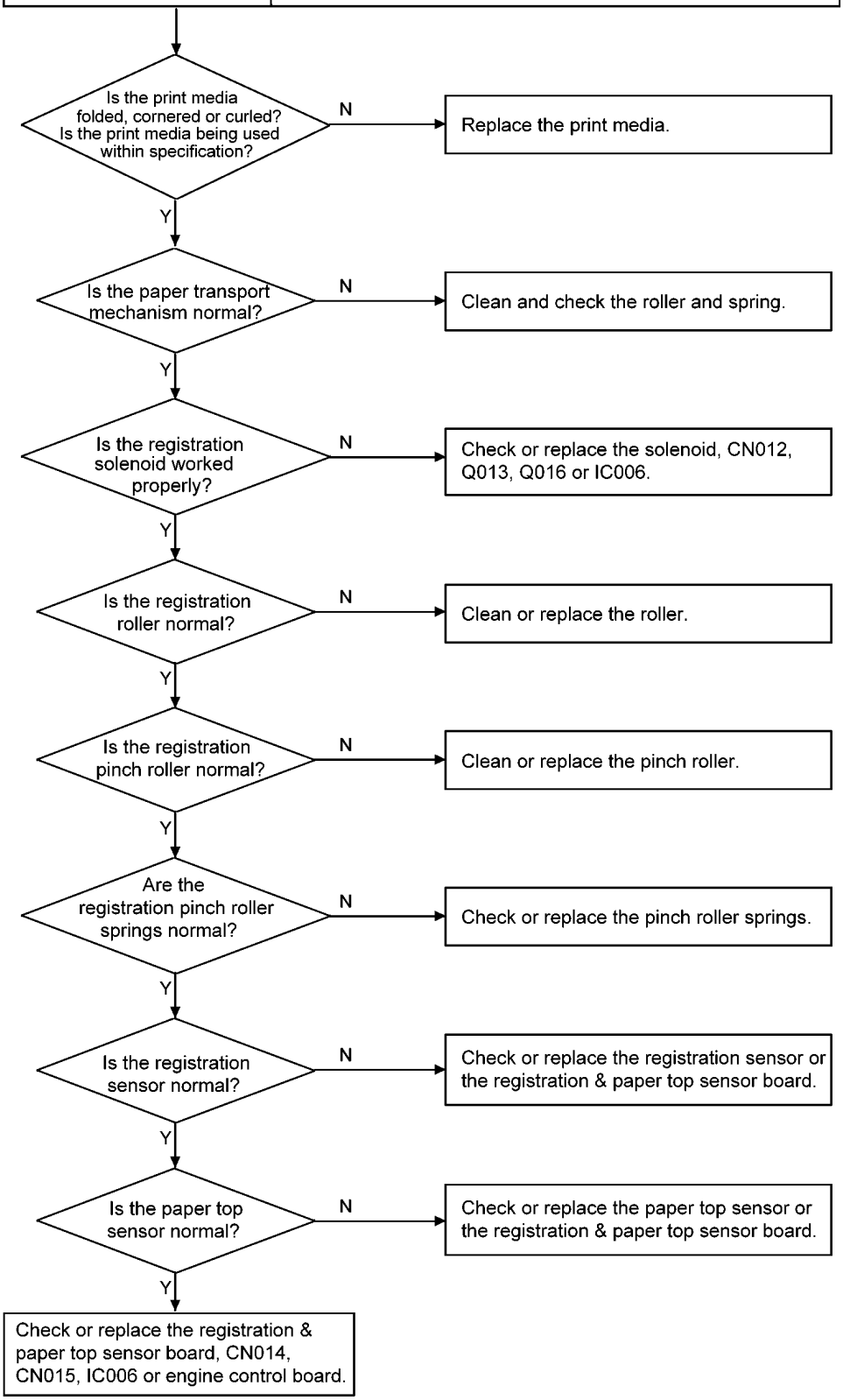
10.4.10. Toner Spatter


* Toner Spatter
* Small toner spots on halftone or parallel lines printing.
Is the media type setting in the printer driver correct?
N
Set the media type setting correctly.
Y
Is the operating environment (temperature/moisture) normal?
N
Change the operating environment, or use new paper.
Y
Is the discharge sheet placed rear of the transfer roller clean?
N
Clean the discharge sheet.
Y
Is the high voltage board normal?
N
Replace the high voltage board.
Y
Check again.

10.5. Paper Jam

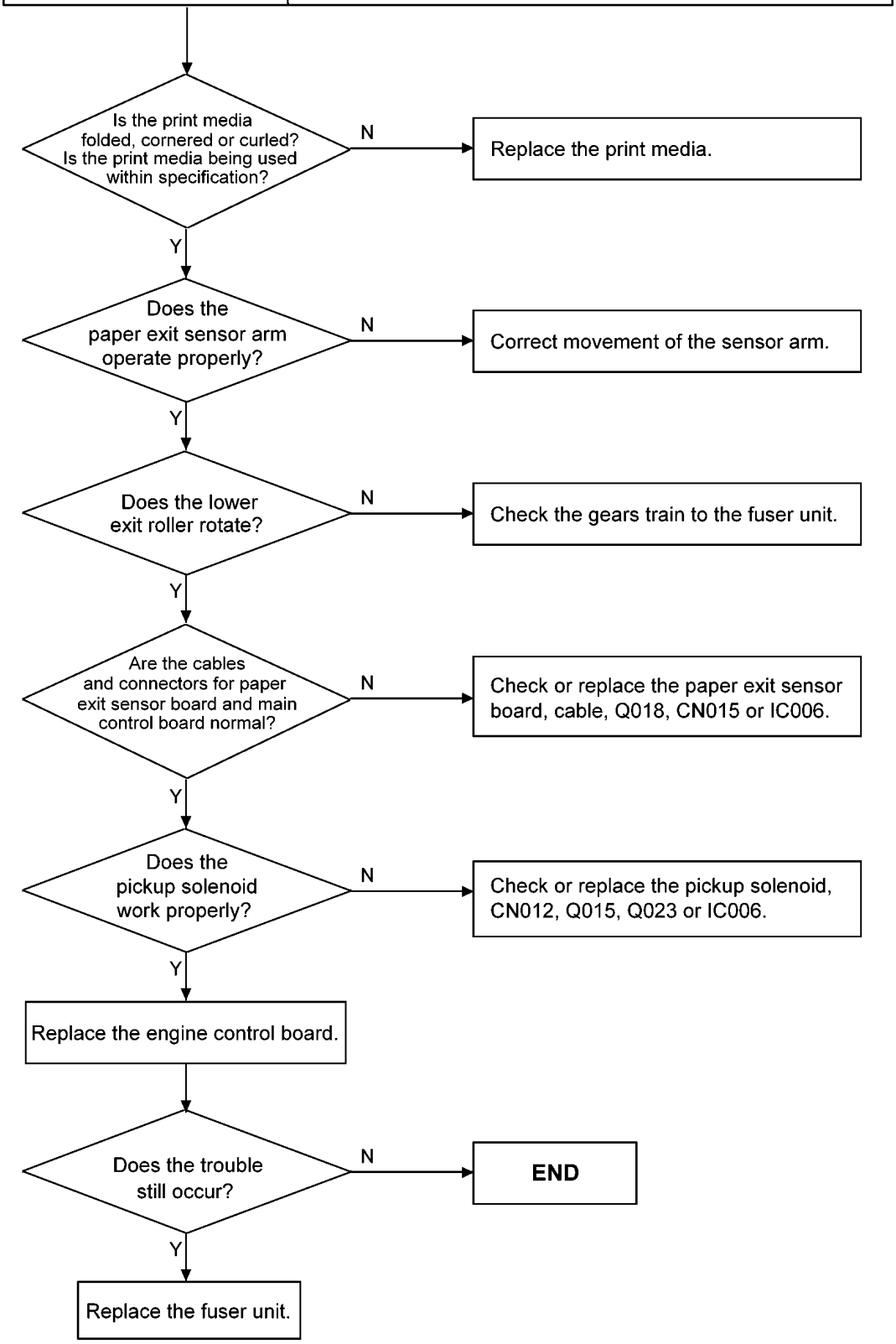
10.5.1. Jam at A

PC Message	Possible Cause
Jam at A	The paper exit/ADU sensor did not sense print media.


Is the print media folded, cornered or curled? Is the print media being used within specification?
N
Replace the print media.
Y
Is the paper transport mechanism normal?
N
Clean and check the roller and spring.
Y
Is the registration solenoid worked properly?
N
Check or replace the solenoid, CN012, Q013, Q016 or IC006.
Y
Is the registration roller normal?
N
Clean or replace the roller.
Y
Is the registration pinch roller normal?
N
Clean or replace the pinch roller.
Y
Are the registration pinch roller springs normal?
N
Check or replace the pinch roller springs.
Y
Is the registration sensor normal?
N
Check or replace the registration sensor or the registration & paper top sensor board.
Y
Is the paper top sensor normal?
N
Check or replace the paper top sensor or the registration & paper top sensor board.
Y
Check or replace the registration & paper top sensor board, CN014, CN015, IC006 or engine control board.

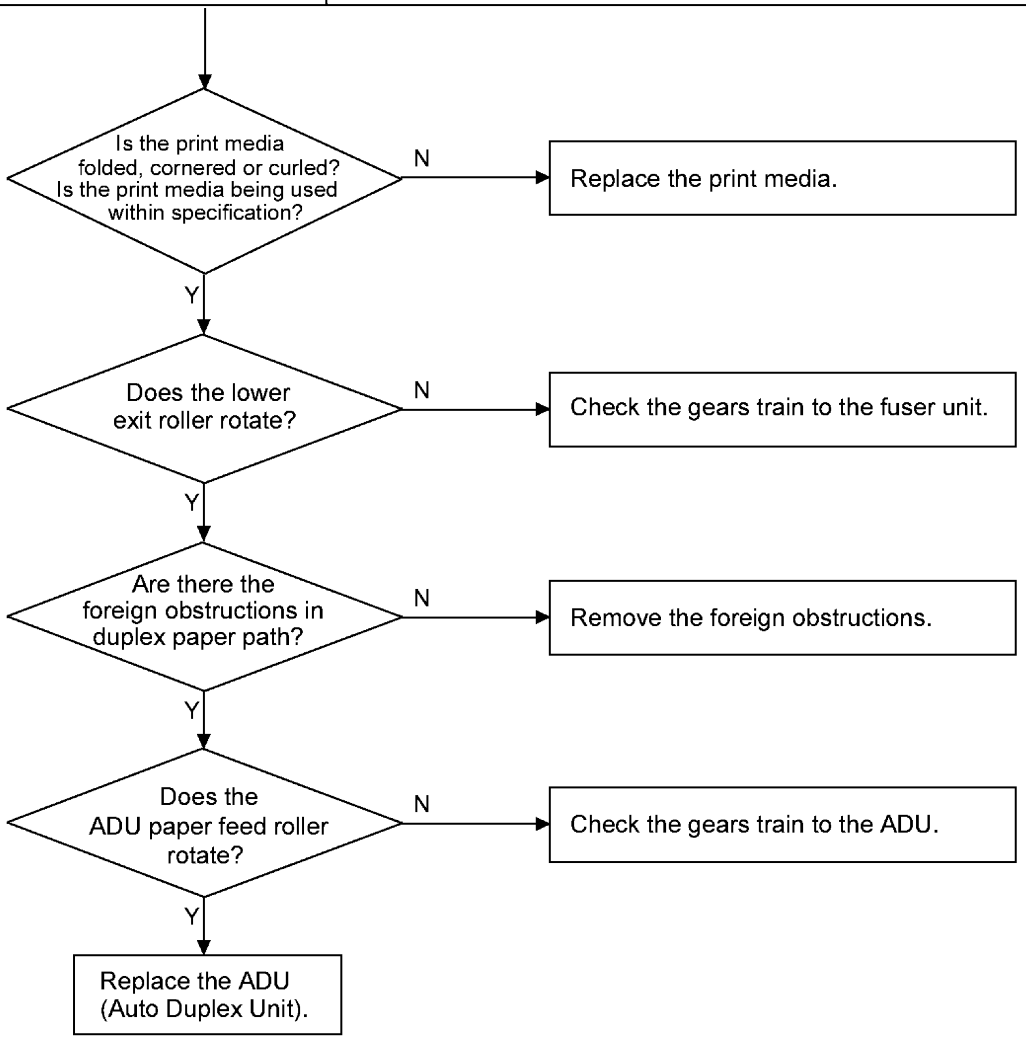
10.5.2. Jam at B

PC Message	Possible Cause
Jam at B	Print media remains on the paper exit sensor too long.


Is the print media folded, cornered or curled? Is the print media being used within specification?
N
Replace the print media.
Y
Does the paper exit sensor arm operate properly?
N
Correct movement of the sensor arm.
Y
Does the lower exit roller rotate?
N
Check the gears train to the fuser unit.
Y
Are the cables and connectors for paper exit sensor board and main control board normal?
N
Check or replace the paper exit sensor board, cable, Q018, CN015 or IC006.
Y
Does the pickup solenoid work properly?
N
Check or replace the pickup solenoid, CN012, Q015, Q023 or IC006.
Y
Replace the engine control board.
Does the trouble still occur?
N
END
Y
Replace the fuser unit.

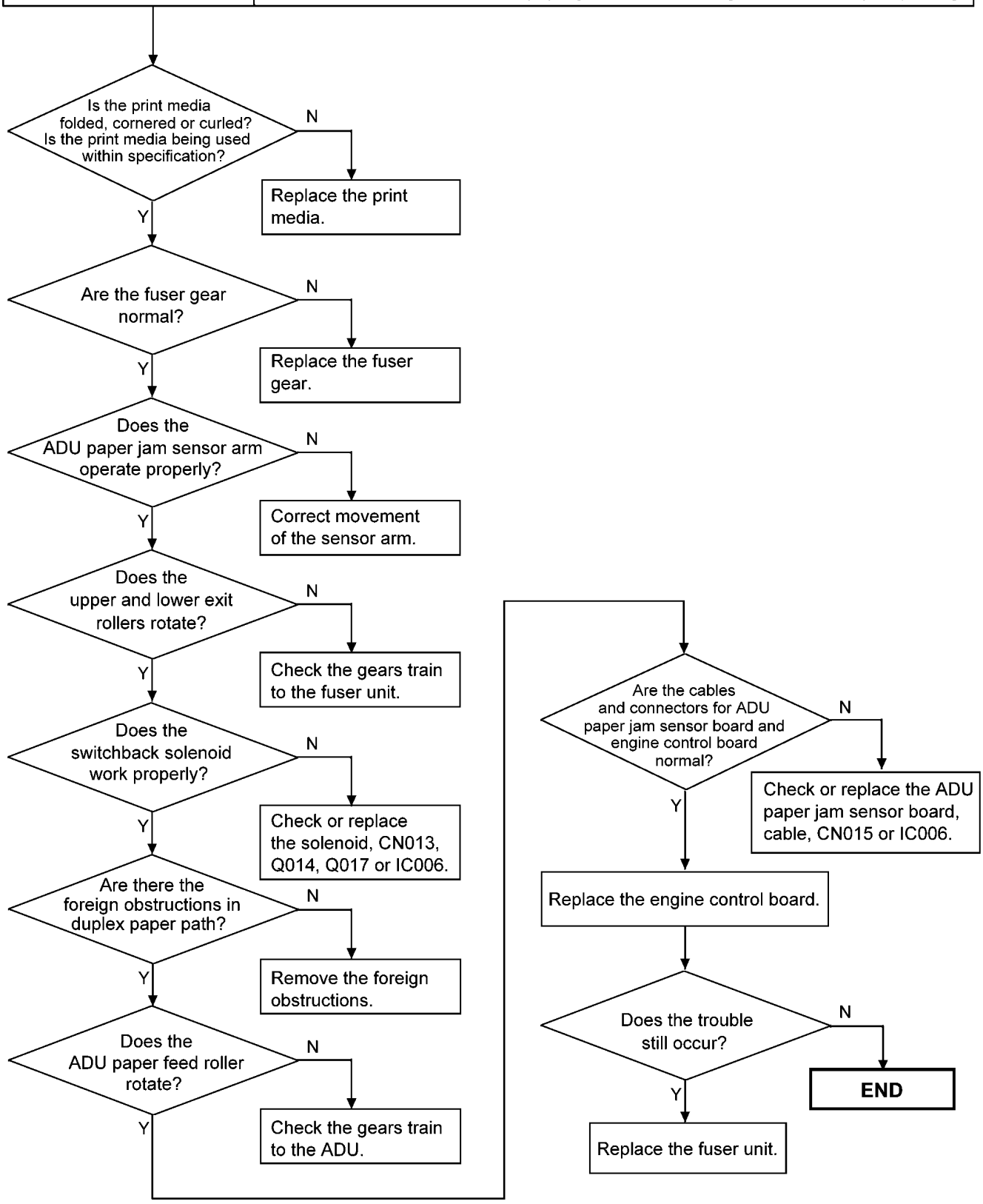
10.5.3. Jam at C

PC Message	Possible Cause
Jam at C	The registration sensor did not sense print media on the Auto Duplex printing.


Is the print media folded, cornered or curled? Is the print media being used within specification?
N
Replace the print media.
Y
Does the lower exit roller rotate?
N
Check the gears train to the fuser unit.
Y
Are there the foreign obstructions in duplex paper path?
N
Remove the foreign obstructions.
Y
Does the ADU paper feed roller rotate?
N
Check the gears train to the ADU.
Y
Replace the ADU (Auto Duplex Unit).

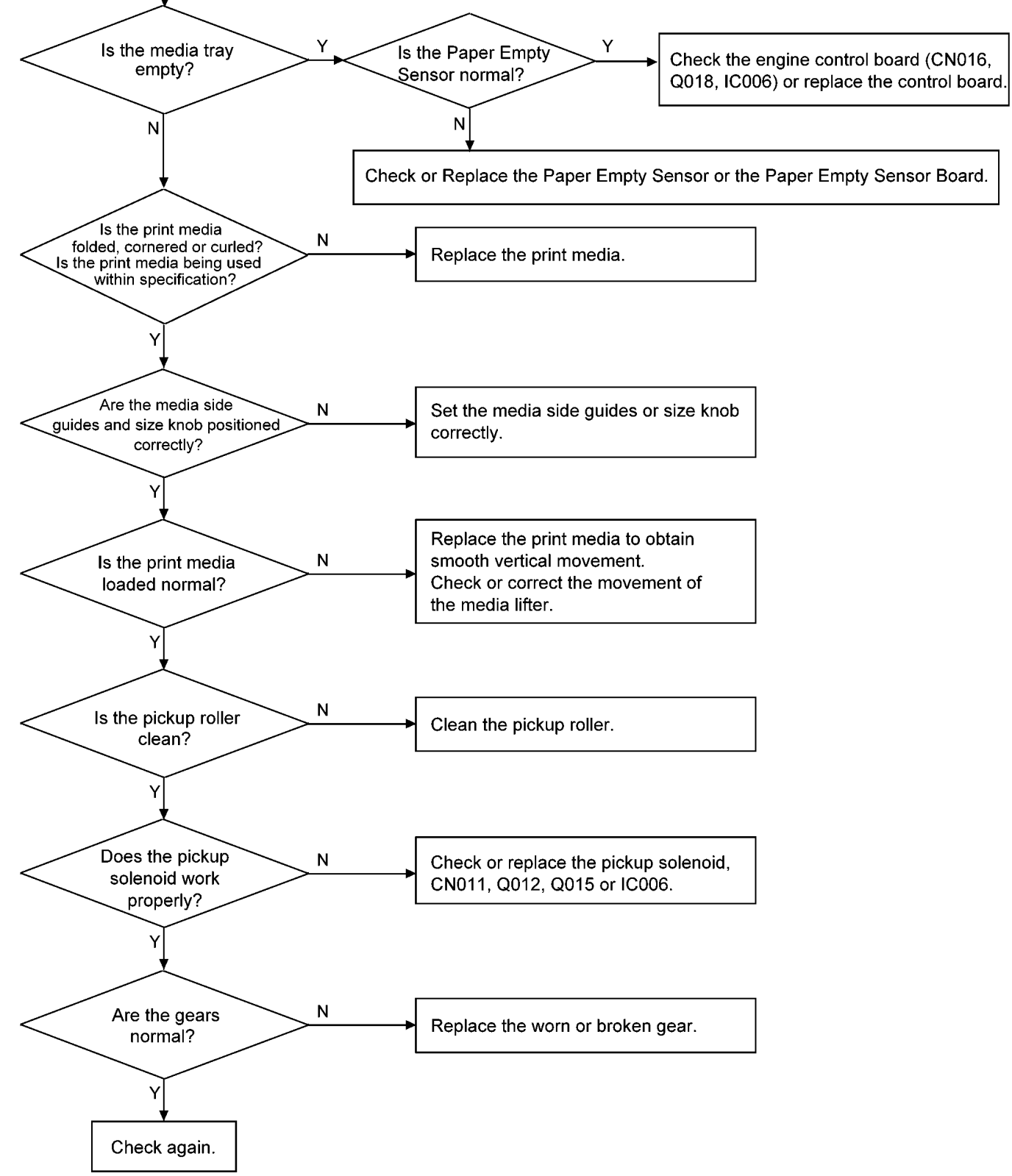
10.5.4. Jam at D, E

PC Message	Possible Cause
Jam at D	The ADU paper jam sensor did not sense print media on the Auto Duplex printing.
Jam at E	Print media remains on the ADU paper jam sensor too long on the Auto Duplex printing.


Is the print media folded, cornered or curled? Is the print media being used within specification?
N
Replace the print media.
Y
Are the fuser gear normal?
N
Replace the fuser gear.
Y
Does the ADU paper jam sensor arm operate properly?
N
Correct movement of the sensor arm.
Y
Does the upper and lower exit rollers rotate?
N
Check the gears train to the fuser unit.
Y
Does the switchback solenoid work properly?
N
Check or replace the solenoid, CN013, Q014, Q017 or IC006.
Y
Are there the foreign obstructions in duplex paper path?
N
Remove the foreign obstructions.
Y
Does the ADU paper feed roller rotate?
N
Check the gears train to the ADU.
Y
Are the cables and connectors for ADU paper jam sensor board and engine control board normal?
N
Check or replace the ADU paper jam sensor board, cable, CN015 or IC006.
Y
Replace the engine control board.
Does the trouble still occur?
N
END
Y
Replace the fuser unit.

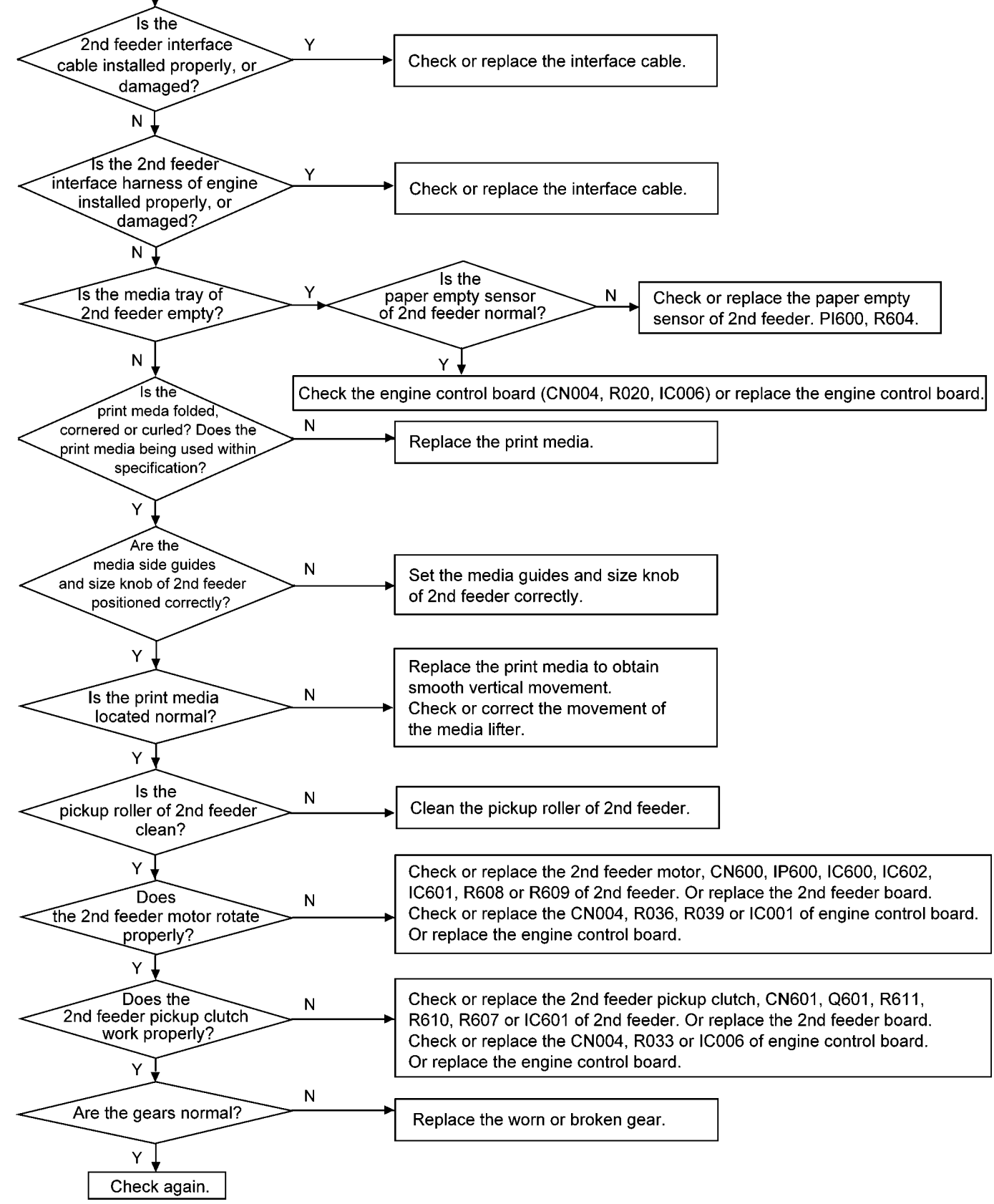
10.5.5. Jam at STD

PC Message	Possible Cause
Jam at STD	The registration sensor did not sense print media, or the Paper Empty Sensor did not work properly.


Is the media tray empty?
Y
Is the Paper Empty Sensor normal?
Y
Check the engine control board (CN016, Q018, IC006) or replace the control board.
N
N
Check or Replace the Paper Empty Sensor or the Paper Empty Sensor Board.
Is the print media folded, cornered or curled? Is the print media being used within specification?
N
Replace the print media.
Y
Are the media side guides and size knob positioned correctly?
N
Set the media side guides or size knob correctly.
Y
Is the print media loaded normal?
N
Replace the print media to obtain smooth vertical movement. Check or correct the movement of the media lifter.
Y
Is the pickup roller clean?
N
Clean the pickup roller.
Y
Does the pickup solenoid work properly?
N
Check or replace the pickup solenoid, CN011, Q012, Q015 or IC006.
Y
Are the gears normal?
N
Replace the worn or broken gear.
Y
Check again.

10.5.6. Jam at OP

PC Message	Possible Cause
Jam at OP	The registration sensor did not sense print media from 2nd feeder, or the paper empty sensor of 2nd feeder did not work properly.


Is the 2nd feeder interface cable installed properly, or damaged?
Y
Check or replace the interface cable.
N
Is the 2nd feeder interface harness of engine installed properly, or damaged?
Y
Check or replace the interface cable.
N
Is the media tray of 2nd feeder empty?
Y
Is the paper empty sensor of 2nd feeder normal?
N
Check or replace the paper empty sensor of 2nd feeder. PI600, R604.
Y
Check the engine control board (CN004, R020, IC006) or replace the engine control board.
N
Is the print meda folded, cornered or curled? Does the print media being used within specification?
N
Replace the print media.
Y
Are the media side guides and size knob of 2nd feeder positioned correctly?
N
Set the media guides and size knob of 2nd feeder correctly.
Y
Is the print media located normal?
N
Replace the print media to obtain smooth vertical movement.
Check or correct the movement of the media lifter.
Y
Is the pickup roller of 2nd feeder clean?
N
Clean the pickup roller of 2nd feeder.
Y
Does the 2nd feeder motor rotate properly?
N
Check or replace the 2nd feeder motor, CN600, IP600, IC600, IC602, IC601, R608 or R609 of 2nd feeder. Or replace the 2nd feeder board.
Check or replace the CN004, R036, R039 or IC001 of engine control board. Or replace the engine control board.
Y
Does the 2nd feeder pickup clutch work properly?
N
Check or replace the 2nd feeder pickup clutch, CN601, Q601, R611, R610, R607 or IC601 of 2nd feeder. Or replace the 2nd feeder board.
Check or replace the CN004, R033 or IC006 of engine control board. Or replace the engine control board.
Y
Are the gears normal?
N
Replace the worn or broken gear.
Y
Check again.

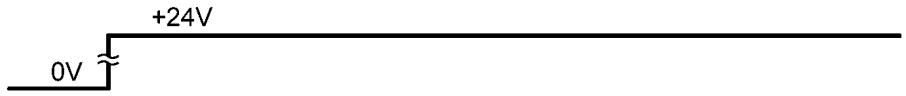
10.6. Call Service

10.6.1. E20

PC Message	Possible Cause
Call for Service (Code : E20)	Scanner motor speed is not locked within 4 seconds after scanner motor starts. Or HSYNC Signal is not detected.

Is the laser unit normal?
N
Check or replace the laser unit.
Y
Is the connection of the scanner cables are normal?
N
Check or replace the scanner cables.
Y
Is the voltage at pin 5 of CN010 OK? (see Fig 1)
N
Go to "No Operation Section".
Y
Is the voltage at pin 4 of CN010 OK?
Different Voltage
Find out and repair the short circuited position.
0V
* Is the waveform at pin 3 of CN010 OK? (see Fig 2)
N
Is the waveform at pin 5 of IC006 OK? (see Fig 5)
N
Check or replace IC006.
Y
Check or replace Q010.
Y
* Is the waveform at pin 1 of CN010 OK? (see Fig 3)
N
Is the waveform at pin 30 of IC006 OK? (see Fig 6)
N
Check or replace IC006.
Y
Check or replace Q011.
Y
* Is the waveform at pin 2 of CN010 OK? (see Fig 4)
N
Check or replace CN010, cable or LSU.
Y
Is nHSYNC line (components) between CN002 and IC001 OK? (see Fig 7)
N
Resolder or replace these components.
Y
Check again.
* Keep checking pin more than 20 sec after turning the power on.

(Fig.1) +24V
(pin 5 of CN010)



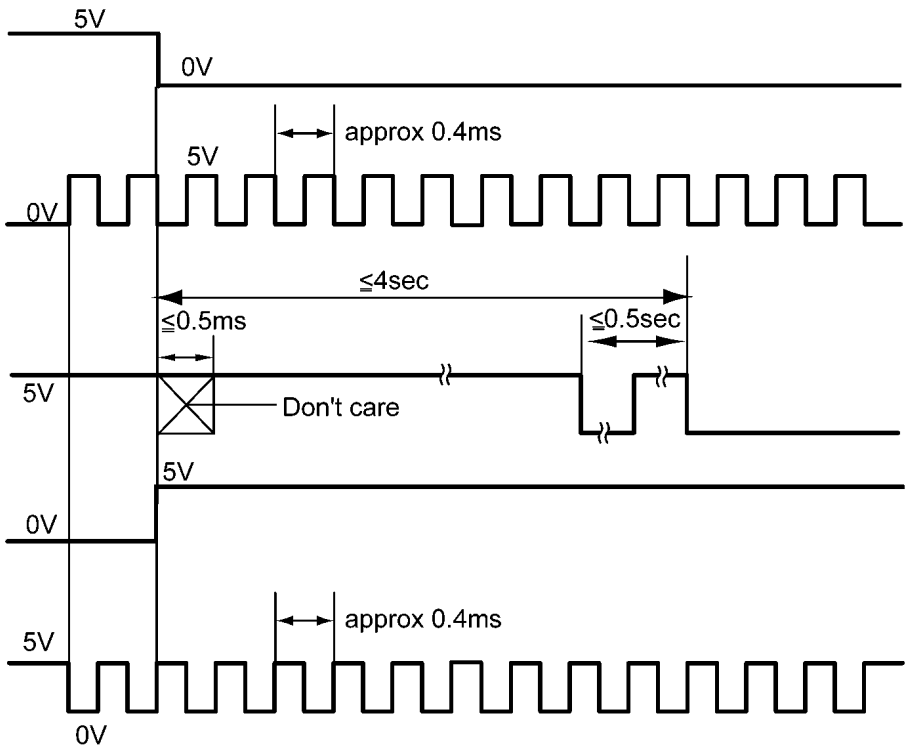
(Fig.2) nSNRCTL
(pin 3 of CN010)

(Fig.3) nSNRCLK
(pin 1 of CN010)

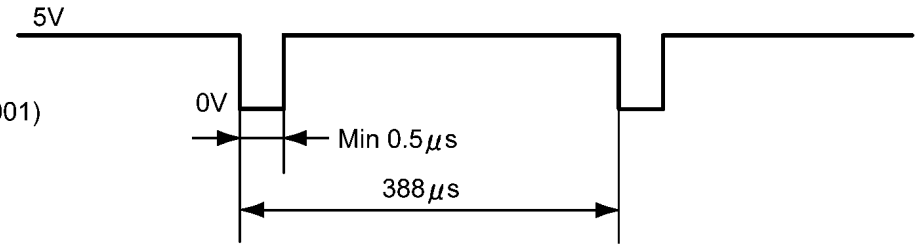
(Fig.4) nSNRLD
(pin 2 of CN010)

(Fig.5) SNRCTL
(pin 5 of IC004)

(Fig.6) SNRCLK
(pin 30 of IC004)

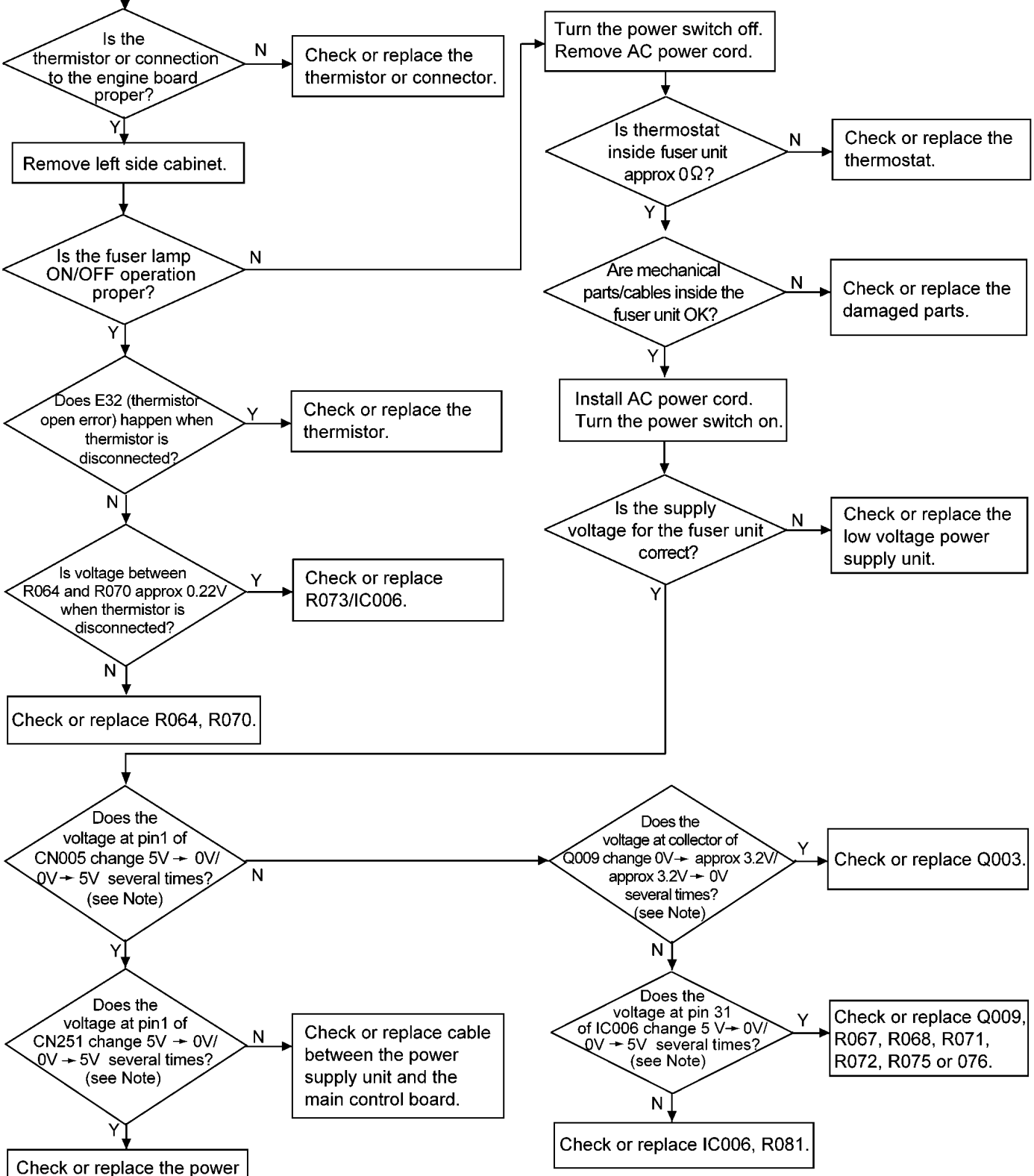


(Fig.7) nHSYNC
(pin 6 of CN002
and pin 66 of IC001)



10.6.2. E30

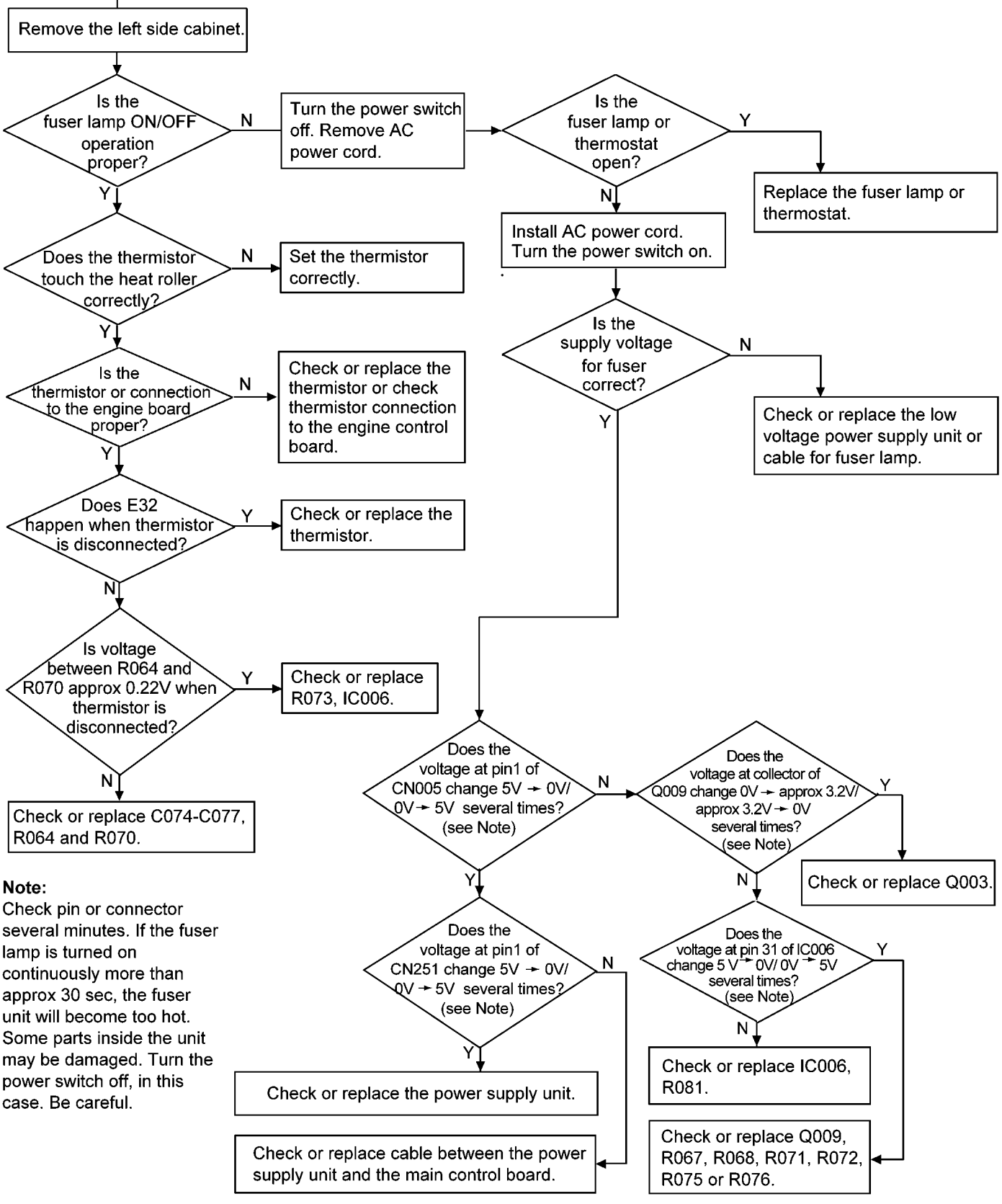
PC Message	Possible Cause
Call for Service (Code : E30)	Fuser temperature is over 235°C. (Fuser over heat had happened.)


Is the thermistor or connection to the engine board proper?
N
Check or replace the thermistor or connector.
Y
Remove left side cabinet.
Is the fuser lamp ON/OFF operation proper?
N
Y
Does E32 (thermistor open error) happen when thermistor is disconnected?
Y
Check or replace the thermistor.
N
Is voltage between R064 and R070 approx 0.22V when thermistor is disconnected?
Y
Check or replace R073/IC006.
N
Check or replace R064, R070.
Turn the power switch off.
Remove AC power cord.
Is thermostat inside fuser unit approx 0Ω?
N
Check or replace the thermostat.
Y
Are mechanical parts/cables inside the fuser unit OK?
N
Check or replace the damaged parts.
Y
Install AC power cord.
Turn the power switch on.
Is the supply voltage for the fuser unit correct?
N
Check or replace the low voltage power supply unit.
Y
Does the voltage at pin1 of CN005 change 5V → 0V/ 0V → 5V several times? (see Note)
N
Y
Does the voltage at pin1 of CN251 change 5V → 0V/ 0V → 5V several times? (see Note)
N
Check or replace cable between the power supply unit and the main control board.
Y
Check or replace the power supply unit.
Does the voltage at collector of Q009 change 0V → approx 3.2V/ approx 3.2V → 0V several times? (see Note)
Y
Check or replace Q003.
N
Does the voltage at pin 31 of IC006 change 5 V → 0V/ 0V → 5V several times? (see Note)
Y
Check or replace Q009, R067, R068, R071, R072, R075 or 076.
N
Check or replace IC006, R081.

Note:
Check pin or connector several minutes. If the fuser lamp is turned on continuously more than approx 30 sec, the fuser unit will become too hot. Some parts inside the unit may be damaged. Turn the power switch off, in this case. Be careful.

10.6.3. E31

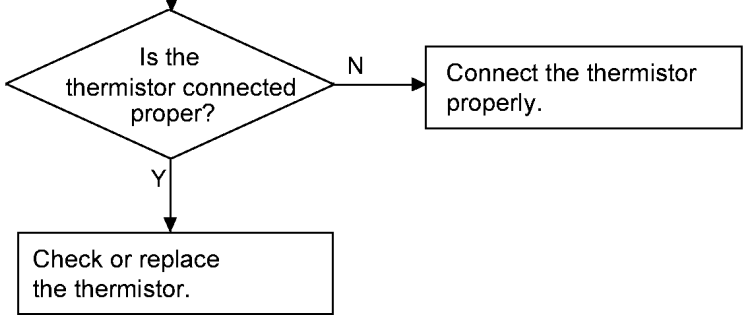
PC Message	Possible Cause
Call for Service (Code : E31)	• Fuser temperature does not reach 100°C within 30 sec, or it is less than 185°C within 30 sec aftr reaching 100°C • Fuser temperature does not return to target temperature within 30 sec after becoming lower than the target.


Remove the left side cabinet.
Is the fuser lamp ON/OFF operation proper?
N
Turn the power switch off. Remove AC power cord.
Is the fuser lamp or thermostat open?
Y
Replace the fuser lamp or thermostat.
N
Install AC power cord. Turn the power switch on.
Y
Does the thermistor touch the heat roller correctly?
N
Set the thermistor correctly.
Y
Is the thermistor or connection to the engine board proper?
N
Check or replace the thermistor or check thermistor connection to the engine control board.
Y
Is the supply voltage for fuser correct?
N
Check or replace the low voltage power supply unit or cable for fuser lamp.
Y
Does E32 happen when thermistor is disconnected?
Y
Check or replace the thermistor.
N
Is voltage between R064 and R070 approx 0.22V when thermistor is disconnected?
Y
Check or replace R073, IC006.
N
Check or replace C074-C077, R064 and R070.
Does the voltage at pin1 of CN005 change 5V → 0V/ 0V → 5V several times? (see Note)
N
Does the voltage at collector of Q009 change 0V → approx 3.2V/ approx 3.2V → 0V several times? (see Note)
Y
Check or replace Q003.
N
Y
Does the voltage at pin1 of CN251 change 5V → 0V/ 0V → 5V several times? (see Note)
N
Y
Check or replace the power supply unit.
Check or replace cable between the power supply unit and the main control board.
Does the voltage at pin 31 of IC006 change 5 V → 0V/ 0V → 5V several times? (see Note)
Y
N
Check or replace IC006, R081.
Check or replace Q009, R067, R068, R071, R072, R075 or R076.

Note:
Check pin or connector several minutes. If the fuser lamp is turned on continuously more than approx 30 sec, the fuser unit will become too hot. Some parts inside the unit may be damaged. Turn the power switch off, in this case. Be careful.

10.6.4. E32

PC Message	Possible Cause
Call for Service (Code : E32)	Fuser thermistor is disconnected or open.



10.6.5. E50

PC Message	Possible Cause
Call for Service (Code : E50)	Fan motor is not rotating properly.

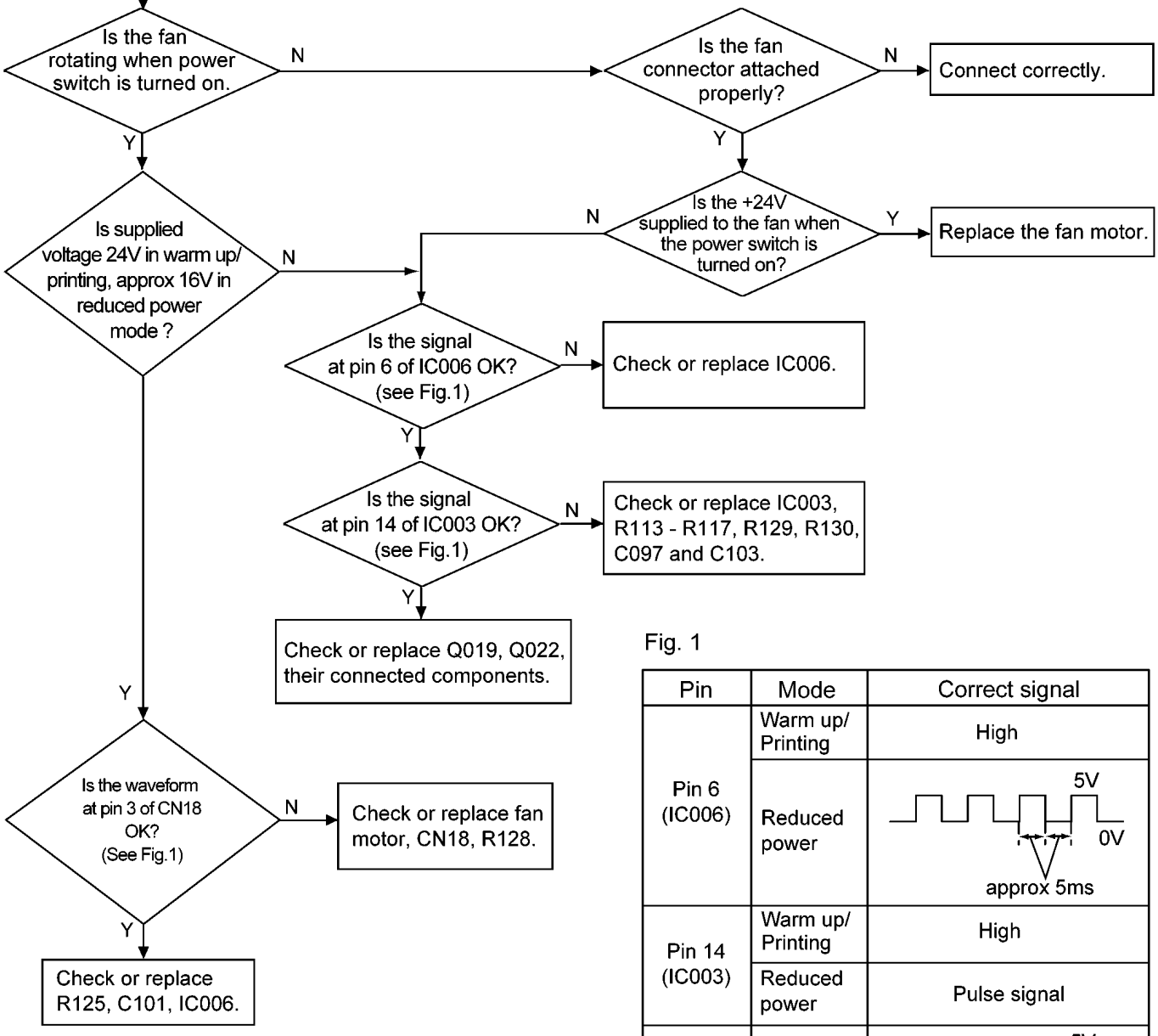
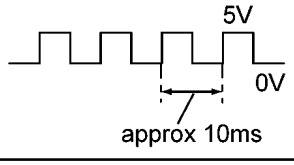
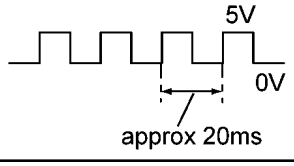
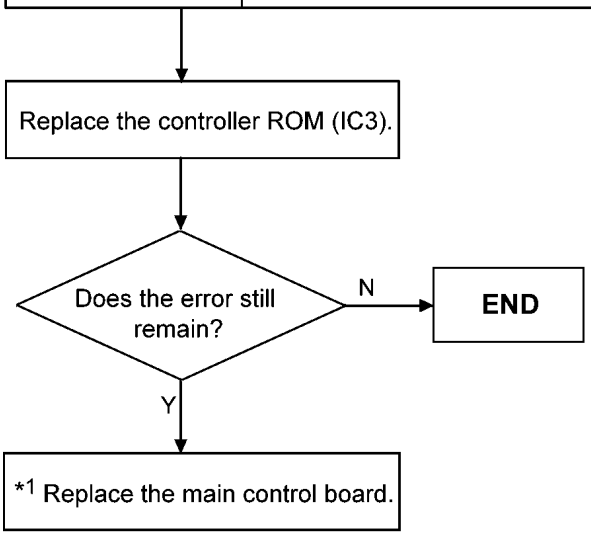

Is the fan rotating when power switch is turned on.
N
Is the fan connector attached properly?
N
Connect correctly.
Y
Y
Is supplied voltage 24V in warm up/ printing, approx 16V in reduced power mode ?
N
N
Is the +24V supplied to the fan when the power switch is turned on?
Y
Replace the fan motor.
Is the signal at pin 6 of IC006 OK? (see Fig.1)
N
Check or replace IC006.
Y
Is the signal at pin 14 of IC003 OK? (see Fig.1)
N
Check or replace IC003, R113 - R117, R129, R130, C097 and C103.
Y
Check or replace Q019, Q022, their connected components.
Y
Is the waveform at pin 3 of CN18 OK? (See Fig.1)
N
Check or replace fan motor, CN18, R128.
Y
Check or replace R125, C101, IC006.

Fig. 1

Pin	Mode	Correct signal
Pin 6 (IC006)	Warm up/ Printing	High
	Reduced power	
Pin 14 (IC003)	Warm up/ Printing	High
	Reduced power	Pulse signal
Pin 3 (CN18)	Warm Up/ Printing	
	Reduced power	

10.6.6. E54

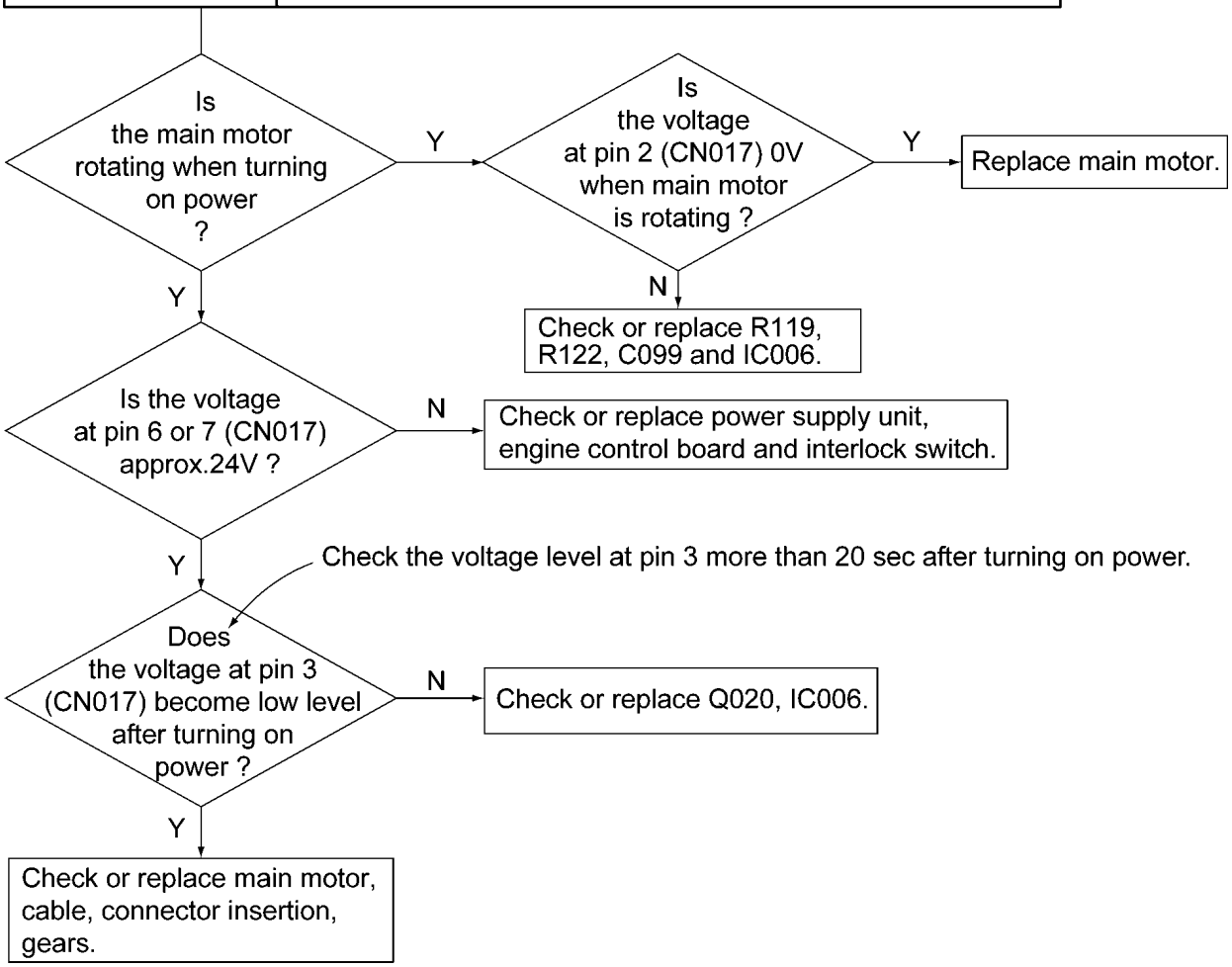
PC Message	Possible Cause
Call for Service (Code : E54)	Controller CPU program ROM checksum error has occurred.



*1 When replacing the Main Control Board,
following item values become following condition.
1) Network Settings [IP Address etc. (KX-P7310 only)] is cleared.
Item 1) must be set up again by user.
2) Setting from Remote Control Panel (Paper Source, Power Save etc.) is cleared.
Item 2) must be set up again by user.
3) Factory Setting Value [MAC address (KX-P7310 only), Product ID etc.] is changed.
In this case, inform user of above comments for item 1) and 2).

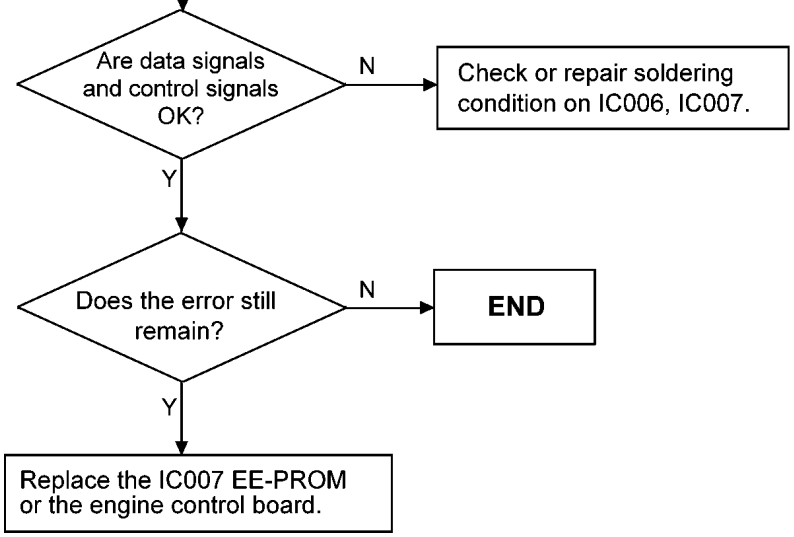
10.6.7. E63

PC Message	Possible Cause
Call for Service (Code : E63)	Main motor is not rotating properly.


Is the main motor rotating when turning on power ?
Y
Is the voltage at pin 2 (CN017) 0V when main motor is rotating ?
Y
Replace main motor.
N
Check or replace R119, R122, C099 and IC006.
Y
Is the voltage at pin 6 or 7 (CN017) approx.24V ?
N
Check or replace power supply unit, engine control board and interlock switch.
Y
Check the voltage level at pin 3 more than 20 sec after turning on power.
Does the voltage at pin 3 (CN017) become low level after turning on power ?
N
Check or replace Q020, IC006.
Y
Check or replace main motor, cable, connector insertion, gears.

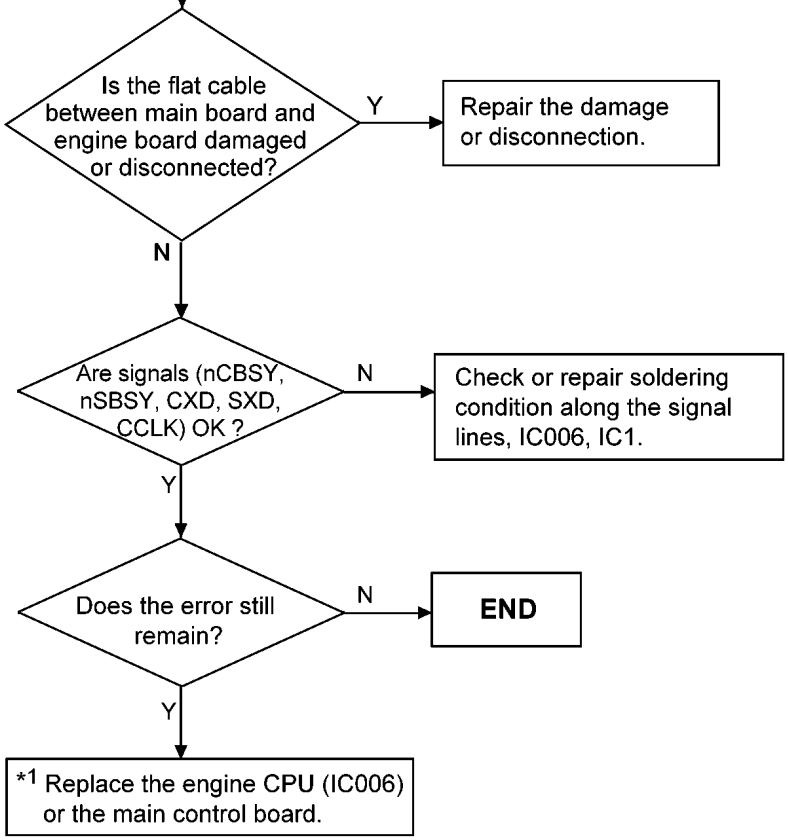
10.6.8. E71

PC Message	Possible Cause
Call for Service (Code : E71)	Engine EE-PROM Read/Write error has occurred.



10.6.9. E73

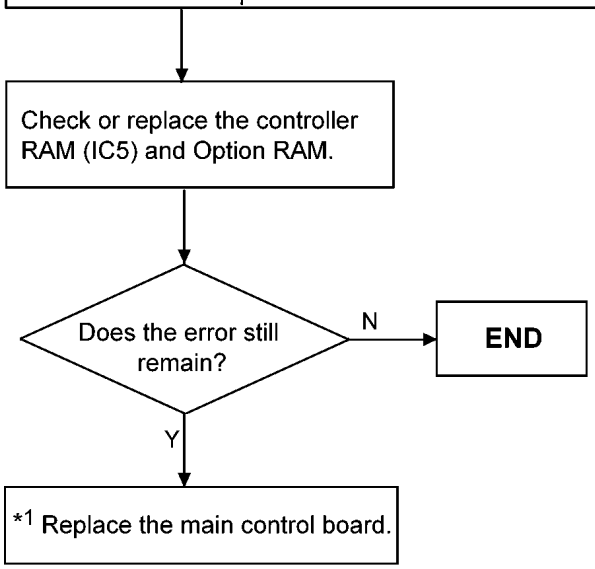
PC Message	Possible Cause
Call for Service (Code : E73)	Parity error occurs or no response comes back from the engine CPU.


Is the flat cable between main board and engine board damaged or disconnected?
Y
Repair the damage or disconnection.
N
Are signals (nCBSY, nSBSY, CXD, SXD, CCLK) OK ?
N
Check or repair soldering condition along the signal lines, IC006, IC1.
Y
Does the error still remain?
N
END
Y
*1 Replace the engine CPU (IC006) or the main control board.

*1 When replacing the Main Control Board,
following item values become following condition.
1) Network Settings [IP Address etc. (KX-P7310 only)] is cleared.
Item 1) must be set up again by user.
2) Setting from Remote Control Panel (Paper Source, Power Save etc.) is cleared.
Item 2) must be set up again by user.
3) Factory Setting Value [MAC address (KX-P7310 only), Product ID etc.] is changed.
In this case, inform user of above comments for item 1) and 2).

10.6.10. E81

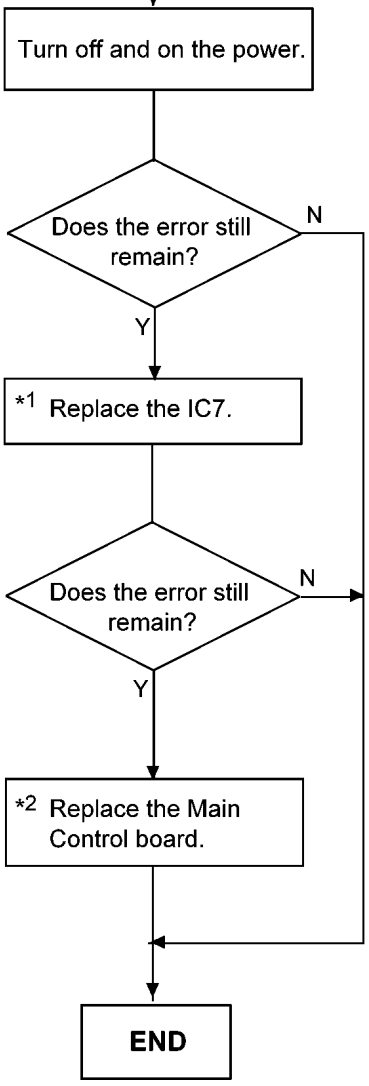
PC Message	Possible Cause
Call for Service (Code : E81)	Controller RAM check error has occurred.


Check or replace the controller RAM (IC5) and Option RAM.
Does the error still remain?
N
END
Y
*1 Replace the main control board.

*1 When replacing the Main Control Board,
following item values become following condition.
1) Network Settings [IP Address etc. (KX-P7310 only)] is cleared.
Item 1) must be set up again by user.
2) Setting from Remote Control Panel (Paper Source, Power Save etc.) is cleared.
Item 2) must be set up again by user.
3) Factory Setting Value [MAC address (KX-P7310 only), Product ID etc.] is changed.
In this case, inform user of above comments for item 1) and 2).

10.6.11. E90

PC Message	Possible Cause
Call for Service (Code : E90)	Controller EEPROM check error has occurred.



*1 When replacing IC7, following item values are deleted.
1) Network Settings [IP Address etc. (KX-P7310 only)]
Item 1) must be set up again by user.
2) Setting from Remote Control Panel (Paper Source, Power Save etc.)
Item 2) must be set up again by user.
3) Factory Setting Value [MAC address (KX-P7310 only), Product ID etc.]
Item 3) must be set up again by software tool by repair technician.
Refer to the "Read me" of software tool for the way of setting.
In this case, inform user of above comments for item 1) and 2).

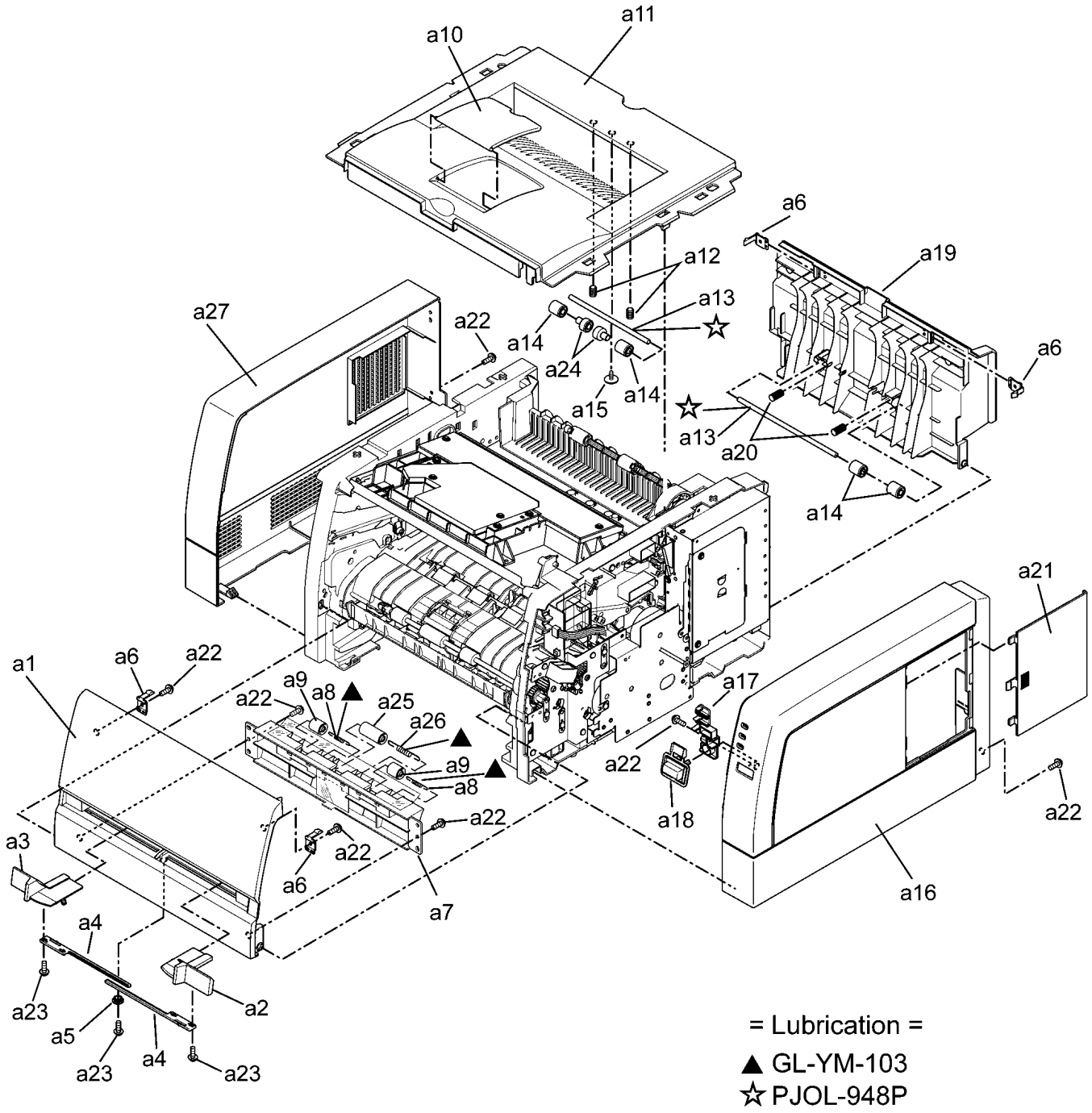
*2 When replacing the Main Control Board,
following item values become following condition.
1) Network Settings [IP Address etc. (KX-P7310 only)] is cleared.
Item 1) must be set up again by user.
2) Setting from Remote Control Panel (Paper Source, Power Save etc.) is cleared.
Item 2) must be set up again by user.
3) Factory Setting Value [MAC address (KX-P7310 only), Product ID etc.] is changed.
In this case, inform user of above comments for item 1) and 2).

11 Replacement Parts List with Lubrication Guide

Notes:

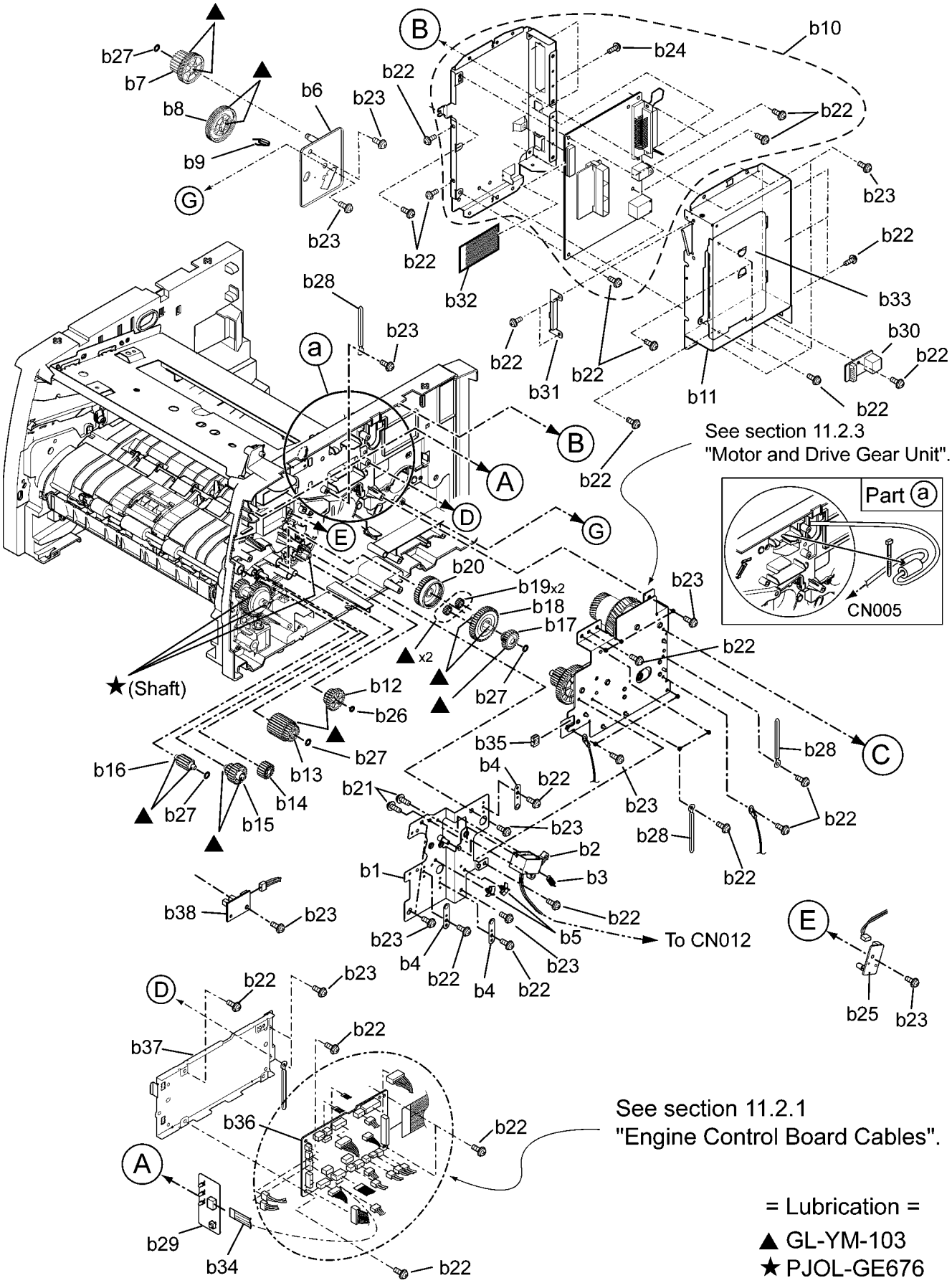
1. Important safety notice.
   Components identified by ⚠ have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
2. The S mark is for service standard parts and may differ from production parts.
3. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

11.1. Exterior



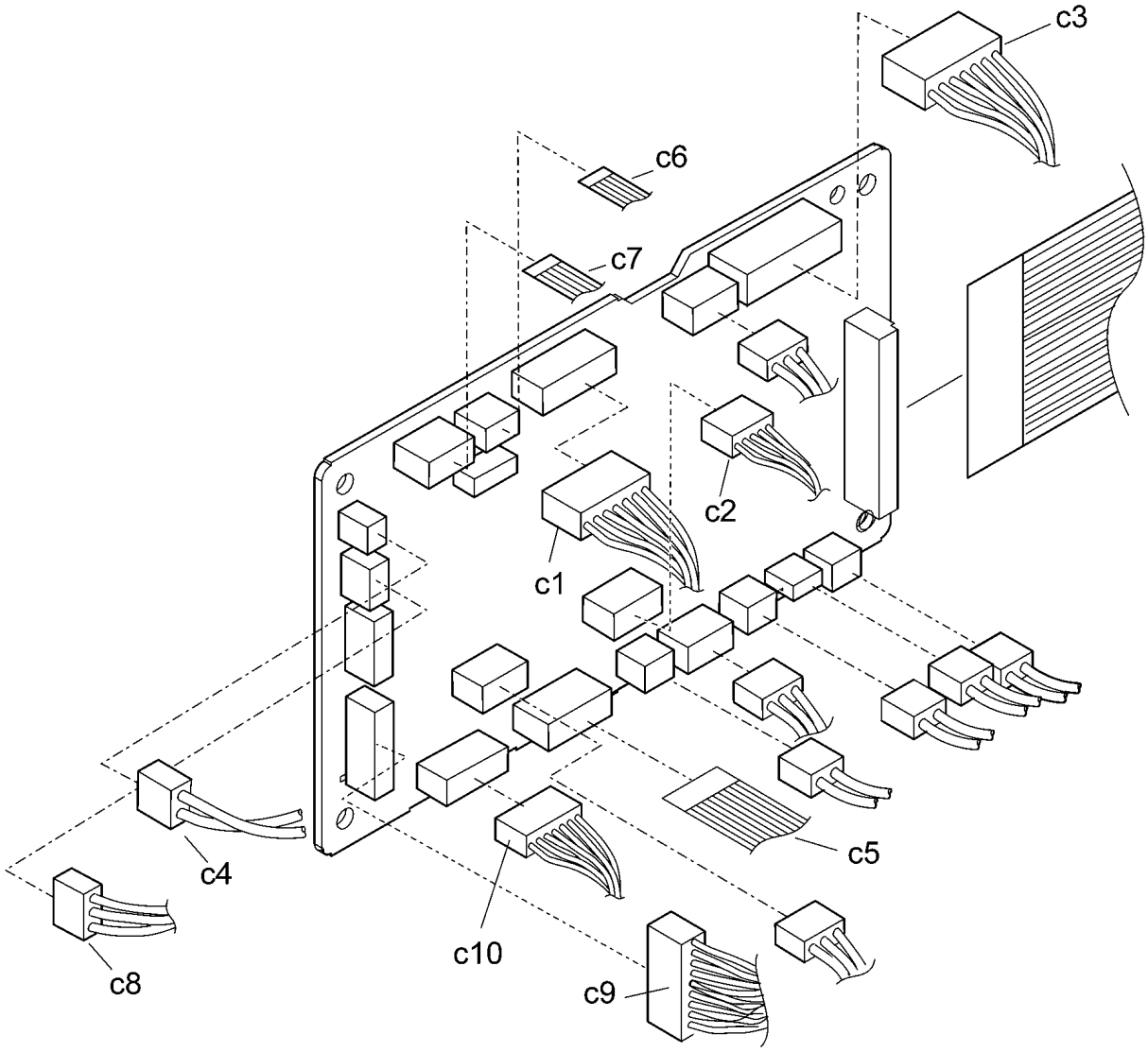
Ref. No.	Part No.	Part Name & Description
a1	PJYKP7305M	Front Cover Assembly for KX-P7305 only
	PJYKP7310M	Front Cover Assembly for KX-P7310 only
a2	PJHRB0043Z	Paper Guide (R)
a3	PJHRB0044Z	Paper Guide (L)
a4	PJHRB0045Z	Guide Rack
a5	PJHRB0046Z	Paper Guide Pinion Gear
a6	PJBAB0011Z	Hook
a7	PJYK4P7305M	Pinch Roller Holder Assembly
a8	PJDSB0034Z	Pinch Roller Spring
a9	PJDRB0017Z	Pinch Roller
a10	PJKEB0012Z	Paper Support
a11	PJYFP7100M	Top Cover Assembly
a12	PJDSB0019Z	Spring
a13	PJDFB0008Z	Roller Shaft
a14	PJDRB0017Z	Roller
a15	PJHE5065Z	Screw
a16	PJYK1P7305M	Right Cover Assembly for KX-P7305
	PJYK1P7310M	Right Cover Assembly for KX-P7310
a17	PJBAB0008Z	LED Indicator Cover
a18	PJBCB0002Z	Continue Button
a19	PJYK3P7305M	Rear Cover Assembly for KX-P7305
	PJYK3P7310M	Rear Cover Assembly for KX-P7310
a20	PJDSB0112Z	Spring
a21	PJKEB0013Z	Option Cover
a22	XTW3+8S	Screw 3 x 8 mm
a23	XTW26+8S	Screw 2.6 x 8 mm
a24	PJDRB0059Z	SUB Roller
a25	PJDRB0093Z	Cleaning Roller
a26	PJDSB0145Z	Cleaning Roller Spring
a27	PJYK2P7305M	Left Cover Assembly

11.2. Right Side Parts



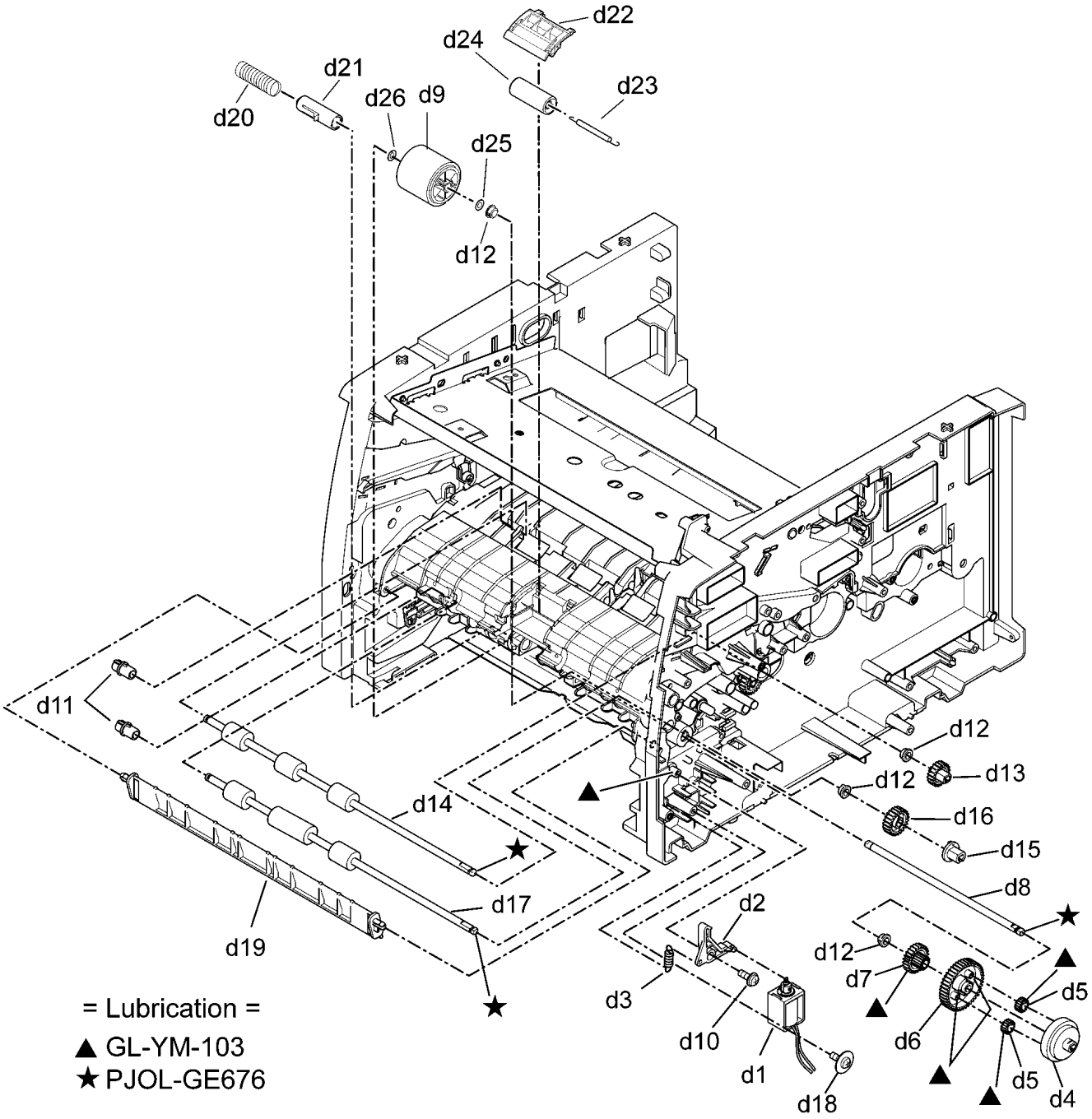
Ref. No.	Part No.	Part Name & Description	Remarks
b1	PJZC2P7100M	Gear Support Bracket	
b2	PJWMP7100M	Registration Solenoid Assembly	
b3	PJDSB0211Z	Registration Lever Spring	
b4	PJUSB0025Z	Earth Spring	
b5	PJHRB0327Z	Clamp	
b6	PJZH1P7305M	Fuser Drive Gear Bracket	
b7	PJDGB0051Z	Fuser Drive Gear	
b8	PJDGB0204Z	Fuser Intermediate Gear	
b9	PJDSB0039Z	Gear Tension Spring	
b10	PJWPP7305M	Main Control Board Complete for KX-P7305 only	RTL
	PJWPP7310M	Main Control Board Complete for KX-P7310 only	RTL
b11	PJWCP7305M	Main Board Shield Cover Assembly	
b12	PJDGB0052Z	ADU Drive Gear	
b13	PJDGB0070Z	Registration Drive Gear	
b14	PJDGB0072Z	Idle Gear Z19	
b15	PJDGB0071Z	Double Teeth Gear	
b16	PJDGB0073Z	Idle Gear Z14	
b17	PJDGB0028Z	Ratchet Gear	
b18	PJDGB0043Z	Registration Arm Gear	
b19	PJDGB0029Z	Planetary Gear Z18	
b20	PJDGB0042Z	Registration Internal Gear	
b21	XYN3+F5	Screw 3 x 5 mm	
b22	XTW3+6L	Screw 3 x 6 mm	
b23	XTW3+8S	Screw 3 x 8 mm	
b24	XSN3+6	Screw 3 x 6 mm	
b25	PJWP3P7100M1	Toner Empty Sensor Board Complete	RTL
b26	PJNW4111Z	Plastic Ring	
b27	PJNW525Z	Plastic Ring	
b28	PJMDB0156Z	Clamp	
b29	PJWP4P7100M1	Indicator Board	RTL
b30	PJWP3P7105M1	2nd Feeder I/F Board Complete	RTL
b31	PJMCB0099Z	Cable Protector	
b32	PJJEB3012Z	Flat Cable	
b33	PJMCB0088Z	Option Shield Cover	
b34	PJJEB3011Z	Indicator Flat Cable	
b35	PJHRA0316Z	Edge Guard	
b36	PJWP1P7305M	Engine Control Board Complete	RTL
b37	PJWC1P7105M	Engine Board Shield Base Assembly	
b38	PJWP2P7105M1	Paper Empty Sensor Board Complete	RTL

11.2.1. Engine Control Board Cables



Ref. No.	Part No.	Part Name & Description
c1	PJJRML0019Z	Cable (from LSU)
c2	PJJRML0020Z	Cable (from Polygon Motor)
c3	PJJRML0001Y	Cable (from Power Supply Unit)
c4	PJJRML0011Z	Cable (from Toner Empty Sensor Board)
c5	PJJEC10003Y	Flat Cable (from High Voltage Board)
c6	PJJEC04002Z	Flat Cable (from Exit Sensor Board)
c7	PJJEC05002Z	Flat Cable (from Reg/Top Sensor Board)
c8	PJJRML0015Z	Cable (from Paper Empty Sensor Board)
c9	PJJRML0014Z	Cable (from 2nd Feeder I/F Board)
c10	PJJRML0021Y	Cable (from Motor)

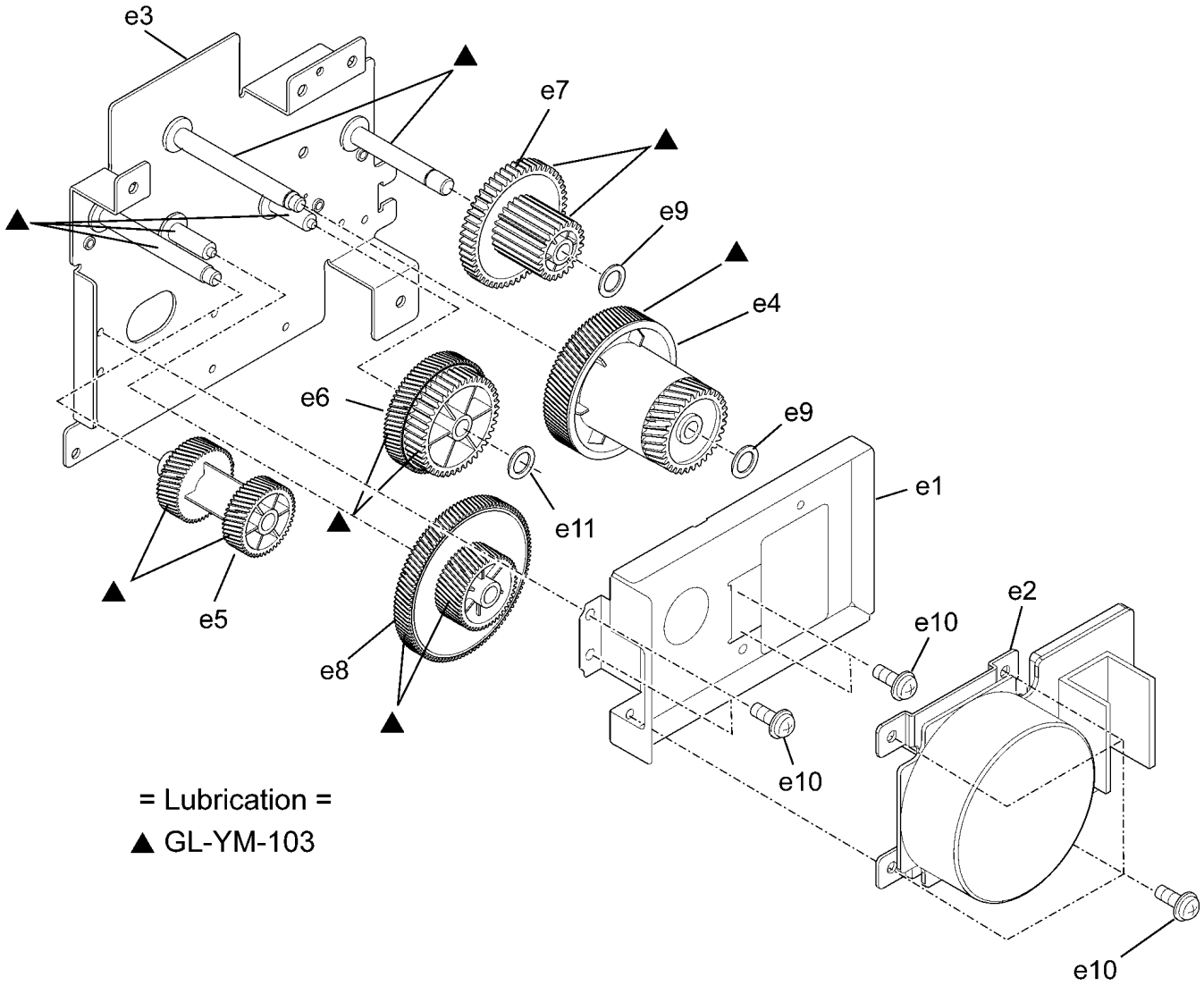
11.2.2. Pickup Roller and Paper Feed Roller



Ref. No.	Part No.	Part Name & Description
d1	PJWMP7305M	Pickup Solenoid Assembly
d2	PJZE1P7100M	Pickup Lever Assembly
d3	PJDSB0211Z	Pickup Spring
d4	PJDGB0040Z	Pickup Internal Gear
d5	PJDGB0029Z	Planetary Gear
d6	PJDGB0041Z	Pickup Arm Gear
d7	PJDGB0027Z	Ratchet Gear
d8	PJDFB0163Z	Pickup Roller Shaft
d9	PJZR1P7305M	Pickup Roller Assembly
d10	XTW3+U8S	Screw 3 x 8 mm
d11	PJDJB0019Z	Bushing
d12	PJDJ05041RZ	Bushing
d13	PJDGB0038Z	Registration Roller Gear
d14	PJDRB0021Z	Registration Roller
d15	PJHRB0070Z	Drive Wheel
d16	PJDGB0039Z	Paper Feed Roller Gear
d17	PJDRB0022Z	Paper Feed Roller
d18	PJHE5065Z	Screw
d19	PJZEP7305M	Sub. Paper Guide

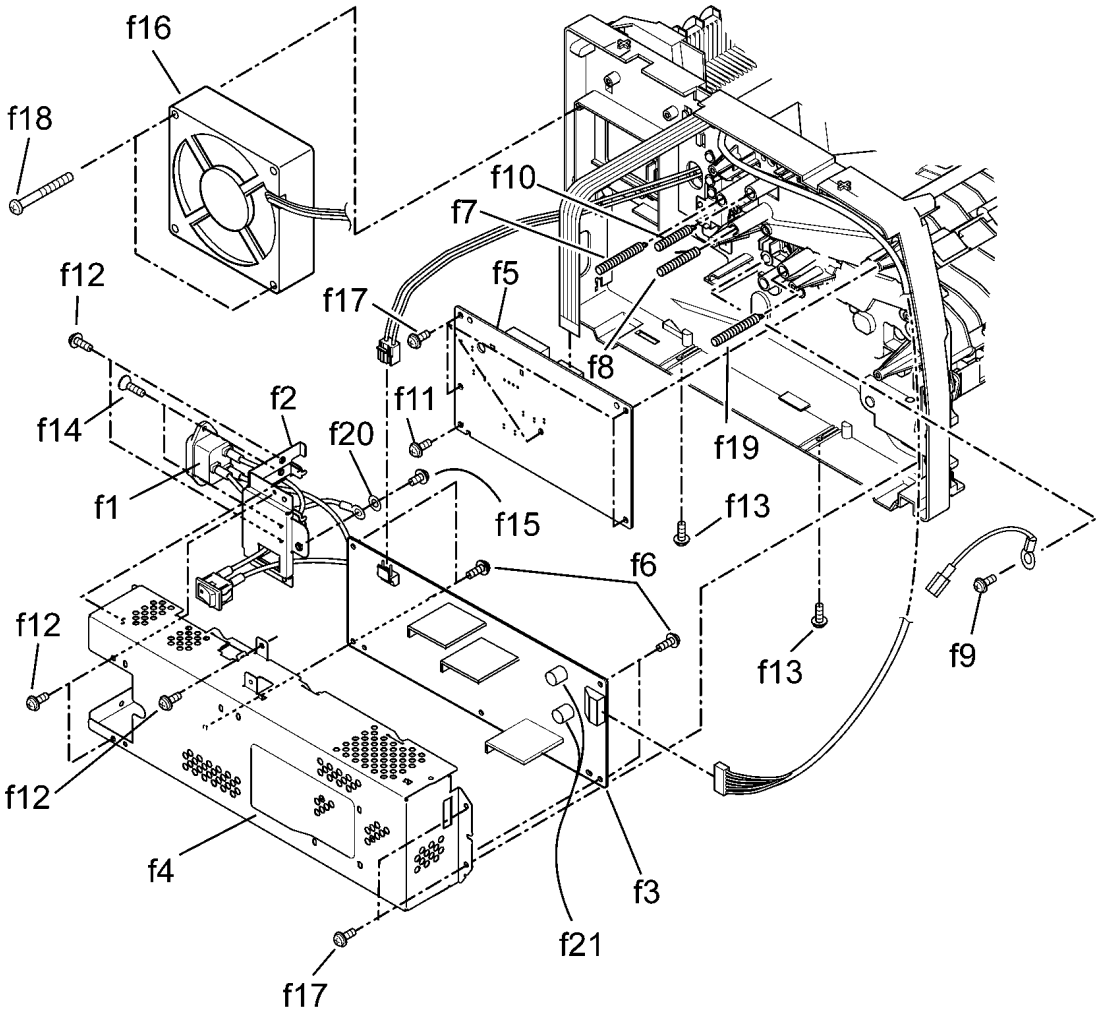
Ref. No.	Part No.	Part Name & Description
d20	PJDSB0207Z	Pickup Holder Spring
d21	PJHRB0640Z	Pickup Holder Adaptor
d22	PJZC1P7305M	Dust Scraper
d23	PJDSB0208Z	Dust Scraper Spring
d24	PJDRB0093Z	Scraper Roller
d25	PJNW4111Z	Plastic Washer
d26	PJNW820Z	Plastic Washer

11.2.3. Motor and Drive Gear Unit



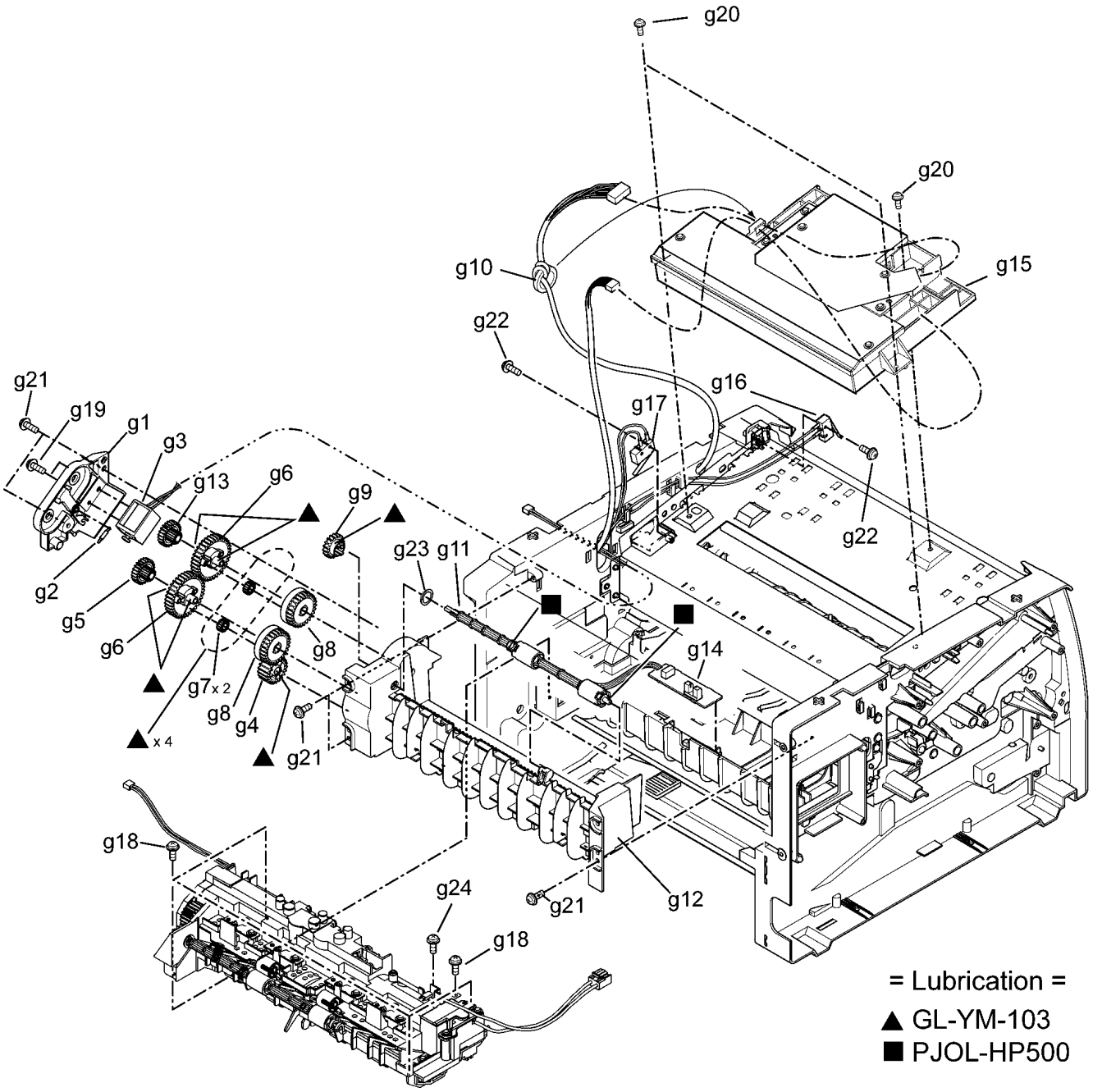
Ref. No.	Part No.	Part Name & Description
e1	PJZHP7305M	Motor Bracket
e2	L6CCKGEK0003	Motor
e3	PJZHP7100M	Drive Gear Bracket Assembly
e4	PJDGB0048Z	OPC Gear (A)
e5	PJDGB0049Z	Fuser Gear
e6	PJDGB0056Z	Registration Gear (A)
e7	PJDGB0069Z	Registration Gear (B)
e8	PJDGB0047Z	OPC Gear (B)
e9	PJNW525Z	Plastic Ring
e10	XTW3+6L	Screw 3 x 6 mm
e11	PJNW620Z	Plastic Ring

11.3. Left Side Parts (Power Supply Unit and High Voltage Board)



Ref. No.	Part No.	Part Name & Description	Remarks
f1	PJWSP7100M	Power Lead Wire Assembly	⚠
f2	PJMCB0042Z	Inlet Bracket	
f3	N0AB2GG00002	Power Supply Board Complete	⚠ , Non-Repairable
f4	PJMCB0004Y	Enclosure Cover	
f5	N0GG4E000002	High Voltage Board Complete	⚠ , Non-Repairable
f6	XYC3+FF8C	Screw 3 x 8 mm	
f7	PJDSB0033Z	Grid Spring	
f8	PJDSB0009Y	OPC Spring	
f9	XTW3+U8S	Screw 3 x 8 mm	
f10	PJDSB0148Z	Charge Spring	
f11	XYC3+FF8C	Screw 3 x 8 mm	
f12	XTW3+6L	Screw 3 x 6 mm	
f13	XTW3+8L	Screw 3 x 8 mm	
f14	XTS3+6F	Screw 3 x 6 mm	
f15	XSN4+W6	Screw 4 x 6 mm	
f16	L6FALEGK0009	Fan Motor	
f17	XTW3+8S	Screw 3 x 8 mm	
f18	PJNEB0008Z	Screw	
f19	PJDSB0149Z	Deve Spring	
f20	XWC4B	Star Washer	
f21	K5G402B00007	Fuse (F251/F261)	⚠

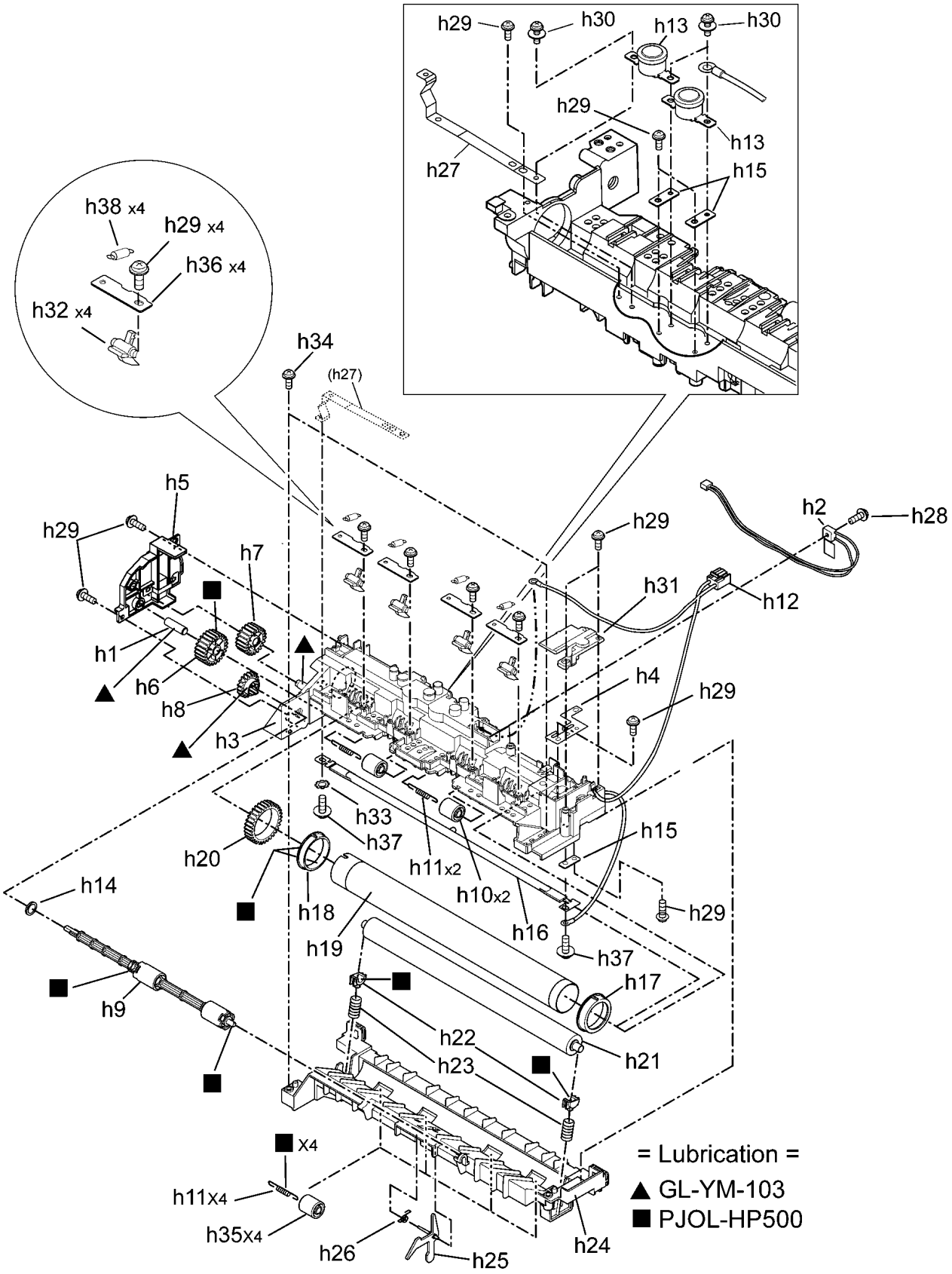
11.4. Rear and Top Side Parts



Ref. No.	Part No.	Part Name & Description	Remarks
g1	PJZC1P7100M	Upper Exit Roller Holder Cover Assembly	
g2	PJDSB0016Z	Ratchet Spring	
g3	PJDPB0001Z	Upper Exit Roller Solenoid with Plunger	
g4	PJDGB0024Z	Upper Exit Roller Drive Gear Z21	
g5	PJDGB0027Z	Black Ratchet Gear	
g6	PJDGB0026Z	Upper Exit Roller Drive Gear Z36	
g7	PJDGB0029Z	Planetary Gear	
g8	PJDGB0025Z	Internal Gear	
g9	PJDGB0203Z	Upper Exit Roller Drive Gear	
g10	K5AT281613	Core	
g11	PJZR2P7305M	Upper Exit Roller Assembly (gray roller)	
g12	PJZBP7305M	Upper Exit Roller Holder	
g13	PJDGB0028Z	Ratchet Gear	
g14	PJWP2P7100M1	Paper Exit/ADU Paper Jam Sensor Board	RTL
g15	PJWEP7305M	LSU (Laser Scanning Unit)	⚠
g16	PJWSP7105M	Front Door Safety Interlock Switch	
g17	PJWS2P7100M	OPC Drum Unit Interlock Switch	
g18	XTW3+12S	Screw 3 x 12 mm	
g19	XSN3+4	Screw 3 x 4 mm	
g20	XYC3+FF8C	Screw 3 x 8 mm	

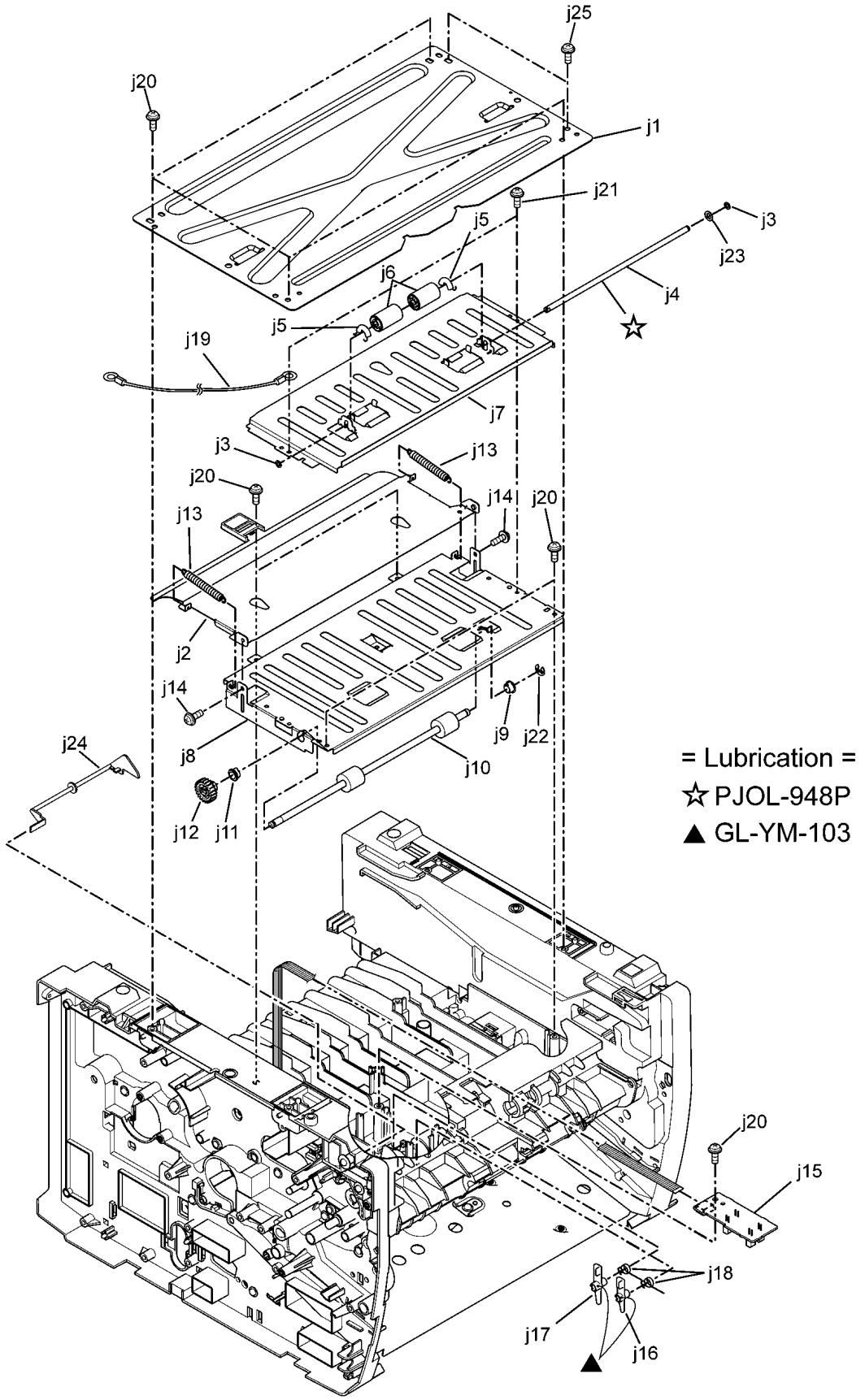
Ref. No.	Part No.	Part Name & Description	Remarks
g21	XTW3+8S	Screw 3 x 8 mm	
g22	XTB2+12J	Screw 2 x 12 mm	
g23	PJNW721Z	Plastic Washer	
g24	XTW3+6L	Screw 3 x 6 mm	

11.4.1. Fuser Unit



Ref. No.	Part No.	Part Name & Description
h1	PJDFB0122Z	Fuser Drive Shaft
h2	PJRTS10Z	Thermistor
h3	PJHRB0635Z	Heat Roller Holder
h4	PJMDB0019Y	Fuser Earth
h5	PJZC3P7100M	Side Fuser Cover Assembly
h6	PJDGB0023Z	Fuser Gear Z24
h7	PJDGB0024Z	Fuser Gear Z21
h8	PJDGB0203Z	Lower Exit Roller Gear
h9	PJZR3P7100M	Lower Exit Roller Assembly (black roller)
h10	PJDRB0017Z	Pinch Roller
h11	PJDSB0018Z	Pinch Roller Spring (A)
h12	PJJRB1025Y	Fuser Cable
h13	PJSE180003Z	Thermostat
h14	PJNW721Z	Plastic Washer
h15	PJMDB0018Z	Lead Wire Plate
h16	L9DAEJ000001	Heat Lamp (Halogen Lamp)
h17	PJDJB0008Z	Heat Roller Bushing (L)
h18	PJDJB0009Z	Heat Roller Bushing (R)
h19	PJDRB0091Z	Heat Roller
h20	PJDGB0021Z	Heat Roller Gear
h21	PJDRB0092Z	Pressure Roller
h22	PJDJB0010Z	Pressure Roller Bushing
h23	PJDSB0205Z	Pressure Roller Spring
h24	PJHRB0636Z	Fuser Unit Base
h25	PJHRB0637Z	Paper Exit/ADU Paper Jam Sensor Lever
h26	PJDSB0015Z	Paper Exit/ADU Paper Jam Sensor Lever Spring
h27	PJMDB0257Z	Lead Wire Plate
h28	XTW3+12S	Screw 3 x 12 mm
h29	XTW3+8S	Screw 3 x 8 mm
h30	XYC3+FF8C	Screw 3 x 8 mm
h31	PJHRB0638Z	Fuser Left Cover
h32	PJHR9224Z	Separator
h33	XWC3B	Star Washer
h34	XTW3+12SFZ	Screw 3 x 12 mm (black)
h35	PJZRP7305M	Cleaning Roller Assembly
h36	PJMDB0253Z	Separator Plate
h37	XYC3+FF6	Screw 3 x 6 mm
h38	PJDSB0206Z	Separator Spring

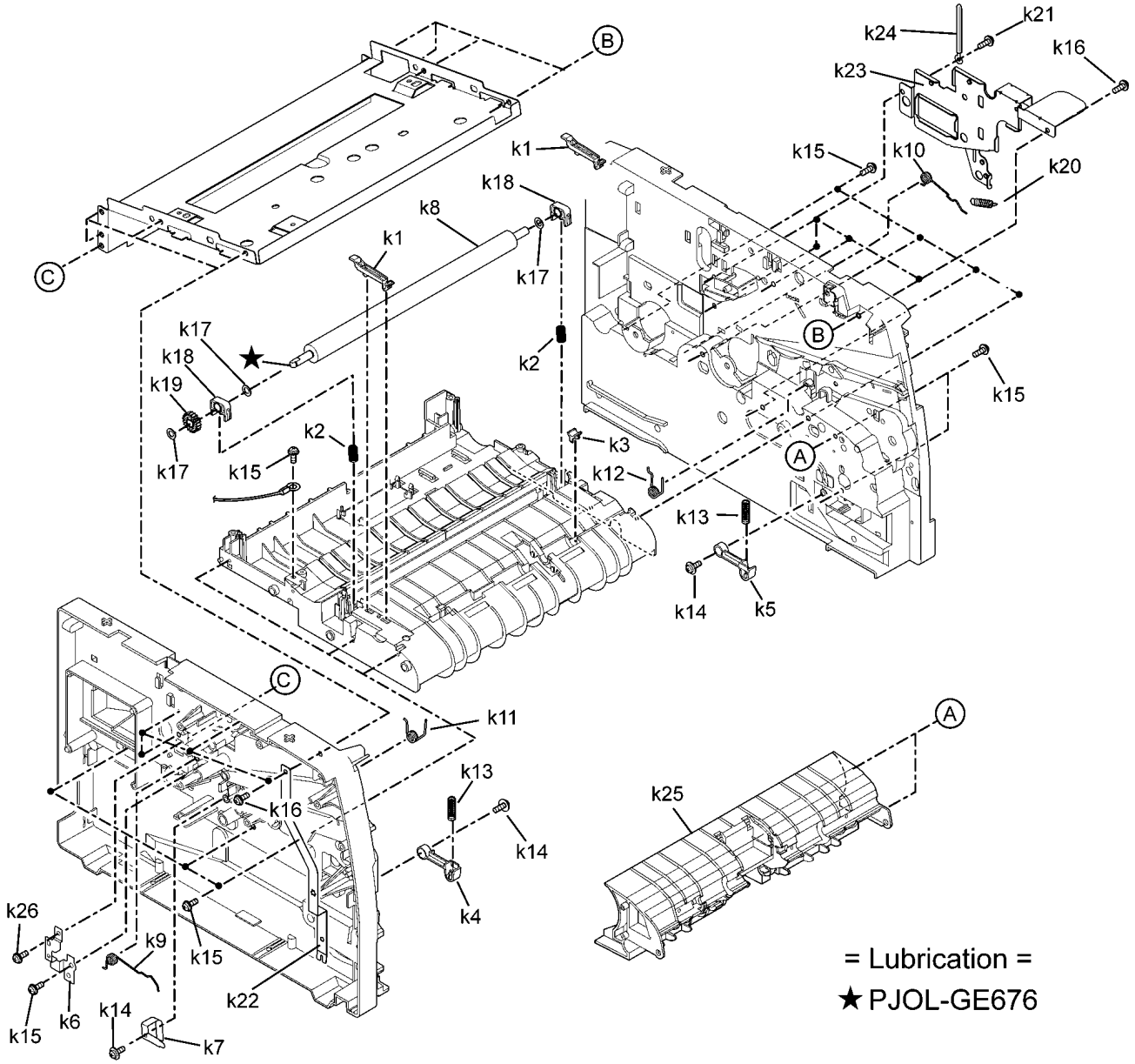
11.5. Bottom Side Parts



Ref. No.	Part No.	Part Name & Description	Remarks
j1	PJUAB0024Y	Bottom Stay	
j2	PJZUP7100M	Jam Release Pan with Knob	
j3	PJNW317Z	Plastic Ring	
j4	PJDFB0009Z	A/D Roller Shaft	

Ref. No.	Part No.	Part Name & Description	Remarks
j5	PJDSB0041Z	Pinch Roller Spring	
j6	PJDRB0018Z	Auto Duplex Pinch Roller	
j7	PJMDB0020Z	ADU Pinch Roller Plate	
j8	PJUAB0005Y	ADU Registration Roller Plate	
j9	PJDJ05041RZ	Bushing	
j10	PJDRB0014Z	ADU Registration Roller Shaft	
j11	PJDJ05011CZ	Bushing	
j12	PJDGB0030Z	A/D Unit Joint Gear	
j13	PJDSB0017Z	Spring	
j14	PJNEB0003Y	Screw	
j15	PJWP2P7305M	Registration & Paper Top Sensor Board Complete	RTL
j16	PJHRB0075Z	Registration Sensor Lever	
j17	PJHRB0076Z	Paper Top Sensor Lever	
j18	PJDSB0035Z	Registration Spring	
j19	PJJTCC014Z	Cable	
j20	XTW3+8S	Screw 3 x 8 mm	
j21	XTW3+6L	Screw 3 x 6 mm	
j22	XUC4VW-V	E-ring	
j23	PJNW410Z	Plastic Ring	
j24	PJHRB0320Z	Paper Empty Sensor Lever	
j25	XTW3+8L	Screw 3 x 8 mm	

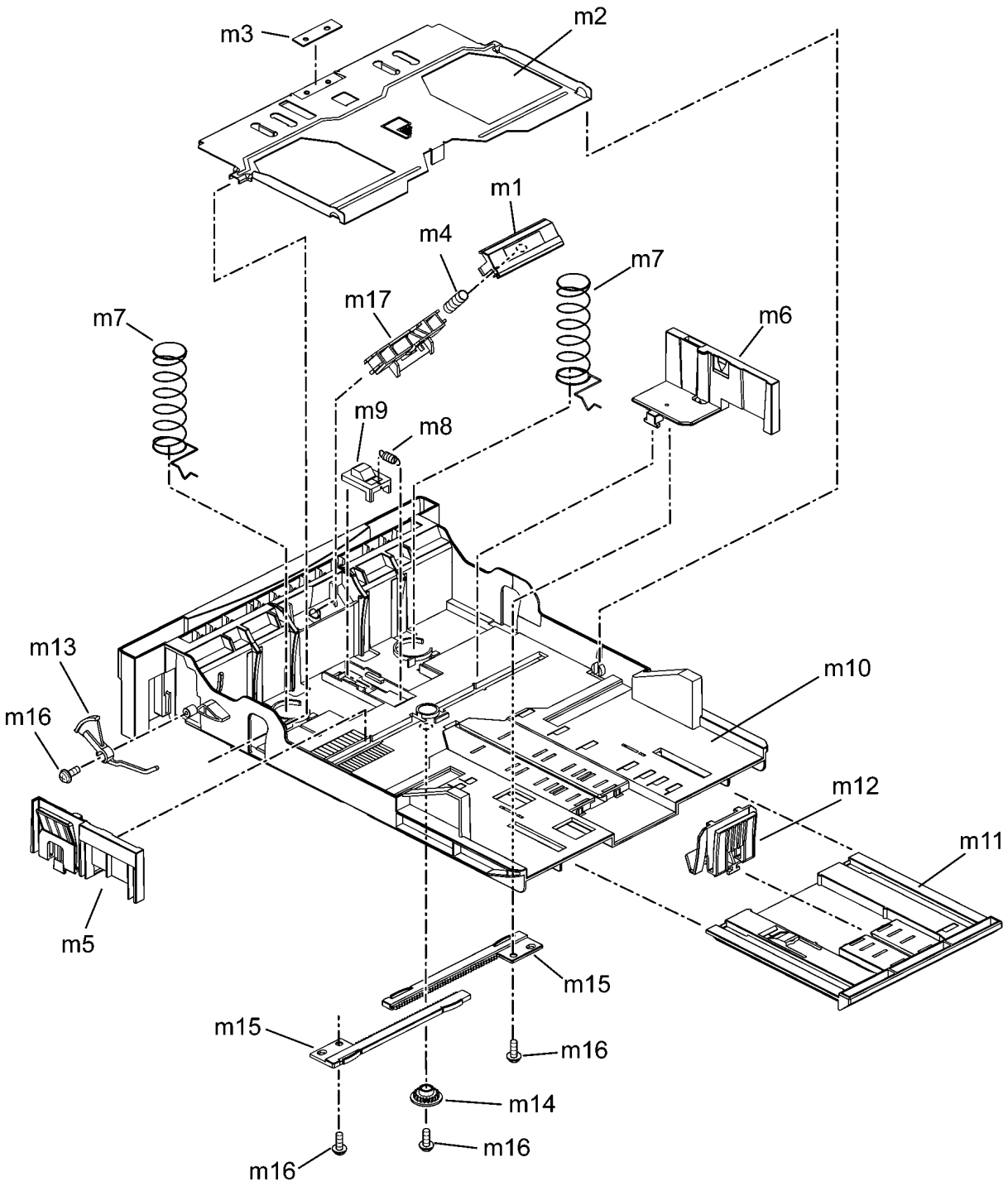
11.6. Mechanical Base



Ref. No.	Part No.	Part Name & Description
k1	PJHRB0324Z	Transfer Roller Holder
k2	PJDSB0040Z	Transfer Spring
k3	PJDJB0020Z	U Bushing
k4	PJHRB0038Z	Pressure Arm (L)
k5	PJHRB0037Z	Pressure Arm (R)
k6	PJUSB0011Y	Earth Plate
k7	PJUSB0008Z	Transfer Roll Bias Plate
k8	PJDRB0081Z	Transfer Roller
k9	PJDSB0026Z	OPC Spring (L)
k10	PJDSB0008Z	OPC Spring (R)
k11	PJDSB0043Z	Resist Spring (L)
k12	PJDSB0010Z	Resist Spring (R)
k13	PJDSB0024Z	Cassette Guide Spring
k14	XTW3+U8S	Screw 3 x 8 mm
k15	XTW3+8S	Screw 3 x 8 mm
k16	XTW3+6L	Screw 3 x 6 mm
k17	PJNW525Z	Plastic Ring
k18	PJHRB0078Z	Bushing
k19	PJDGB0057Z	Transfer Gear
k20	PJDSB0211Z	Registration Lever Spring
k21	XTW3+8L	Screw 3 x 8 mm
k22	PJMCB0070Z	Earth Plate (1)
k23	PJMCB0068Z	Earth Plate (2)
k24	PJMDB0156Z	Clamp

Ref. No.	Part No.	Part Name & Description
k25	PJZCP7305M	Paper Chute
k26	XYC3+FF6	Screw 3 x 6 mm

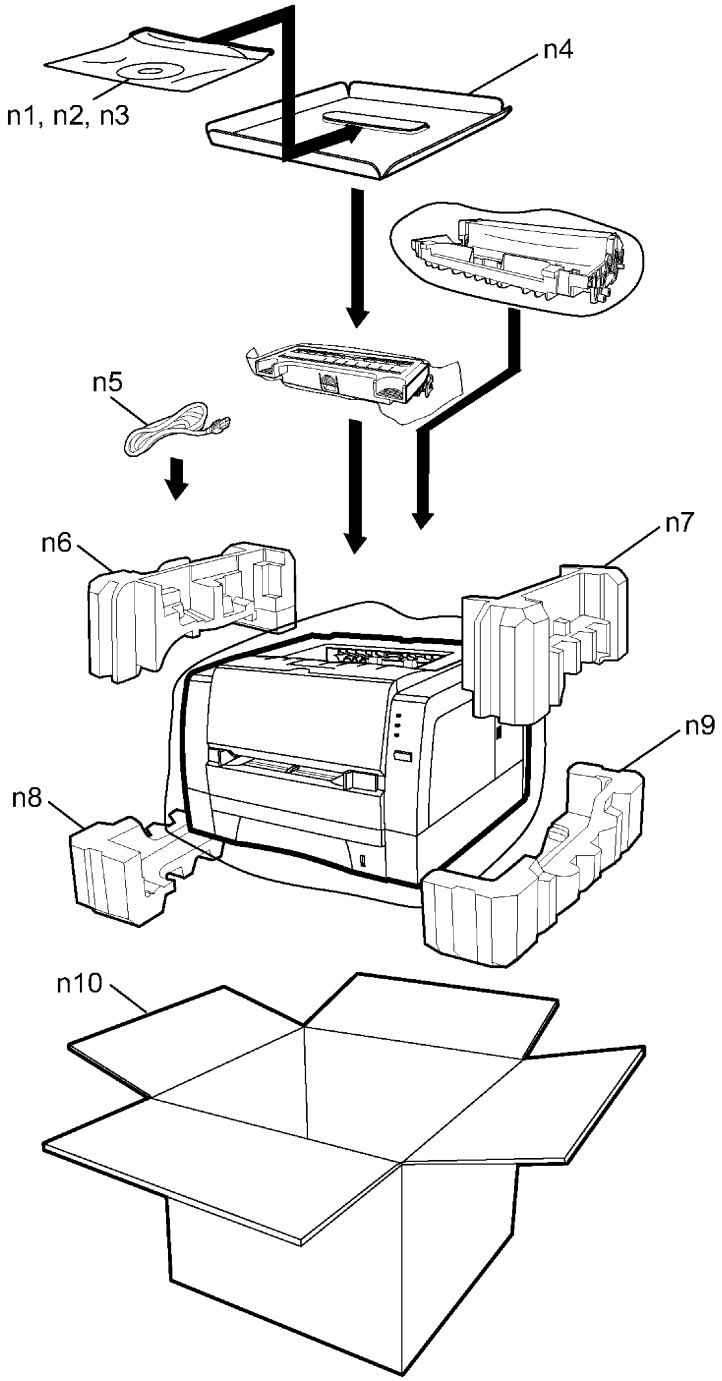
11.7. Media Tray (Paper Cassette)



Ref. No.	Part No.	Part Name & Description
m1	PJZEP7100M1	Retard Pad Assembly
m2	PJMDB0026Z	Media Lifter
m3	PJHSB0007Z	Friction Pad
m4	PJDSB0179Z	Retard Pad Spring
m5	PJHRB0031Z	Media Side Guide (R)
m6	PJHRB0032Z	Media Side Guide (L)
m7	PJDSB0210Z	Friction Spring
m8	PJDSB0020Z	Stopper Spring
m9	PJHRB0034Z	Stopper
m10	PJHRB0029Y	Cassette Base
m11	PJHRB0030Z	Cassette Extension Tray

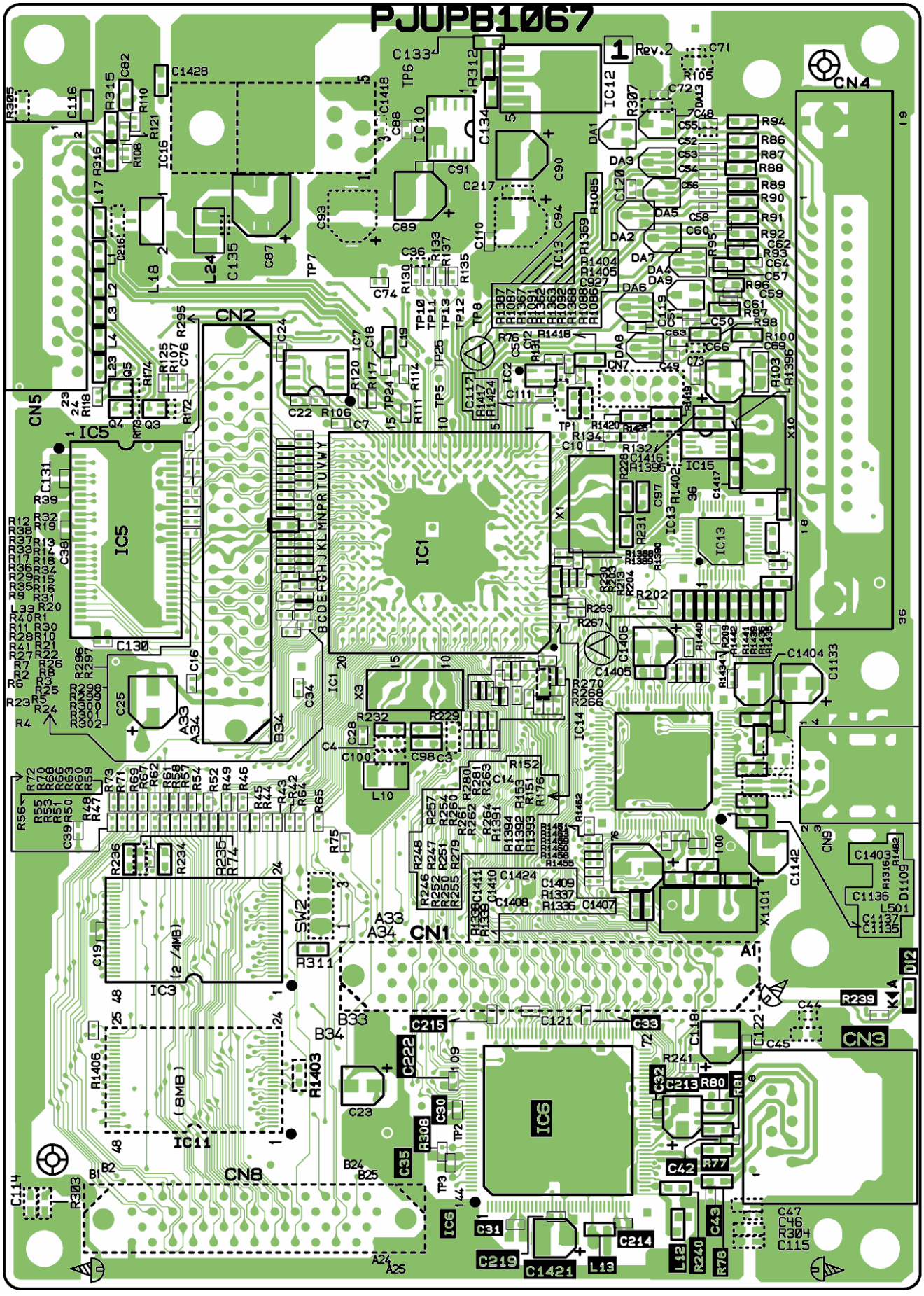
Ref. No.	Part No.	Part Name & Description
m12	PJHRB0033Z	Media Size Knob
m13	PJHRB0307Z	Indicator
m14	PJDG50133Z	Pinion Gear
m15	PJHRB0036Z	Rack
m16	XTW3+U8S	Screw 3 x 8 mm
m17	PJHRB0476Z	Retard Adapter

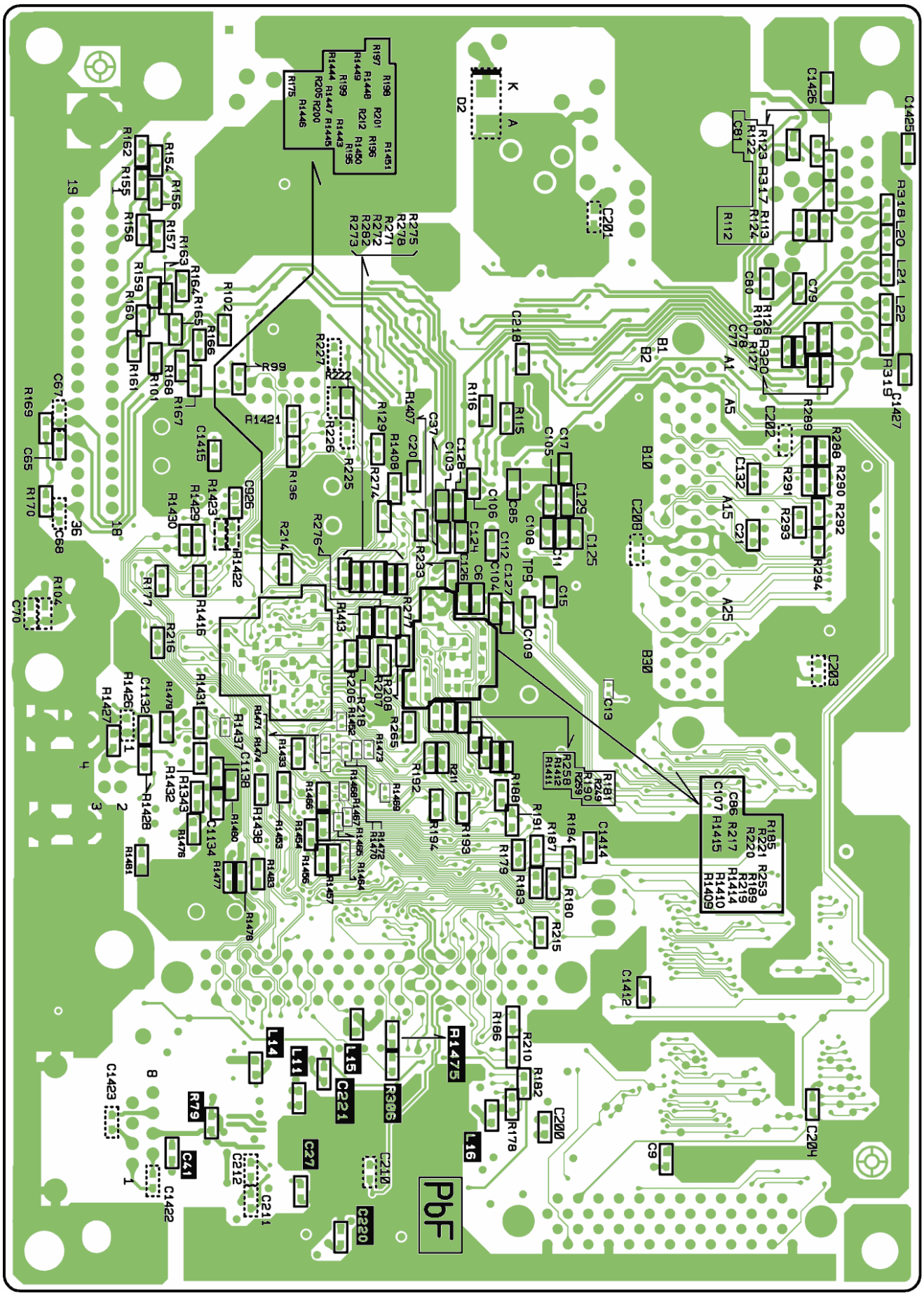
11.8. Packing



Ref. No.	Part No.	Part Name & Description	Remarks
n1	PJJXB0016Y	CD-ROM	
n2	PJQQB0034Z	Setup Guide (English)	
n3	PJQQB0042Z	Setup Guide (Network) for KX-P7310 only	
n4	PJPNB0026Z	Pad for CD-ROM	
n5	PFJA1030Z	Power Cord	⚠
n6	PJPNB0024Y	Top Pad (L)	
n7	PJPNB0025Y	Top Pad (R)	
n8	PJPNB0030Z	Bottom Pad (L)	
n9	PJPNB0031Z	Bottom Pad (R)	
n10	PJYCP7305M	Carton Box for KX-P7305 only	
	PJYCP7310M	Carton Box for KX-P7310 only	

11.9. Main Control Board




PbF

Integrated Circuit

Ref. No.	Part No.	Part Name & Description	Remarks
IC1	C1DB00000990	Main CPU	
IC2	C0EBD0000119	Reset IC	
IC3	PJWIP7305M	Main ROM	KX-P7305 only
	PJWIP7310M	Main ROM	KX-P7310 only
IC5	C3ABQG000042	SDRAM	
IC7	C3EBEC000032	EEPROM	KX-P7305 only
	C3EBHC000014	EEPROM	KX-P7310 only
IC10	C0DBZGG00004	Regulator	
IC12	C0DBZFG00009	Regulator	
IC14	C1DB00001060	USB Controller	
IC15	C0JBAB000524	Inverter	

Resistor (All resistors values are in OHMs)

Ref. No.	Part No.	Part Name & Description	Remarks
R1	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R2	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R3	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R4	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R5	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R6	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R7	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R8	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R9	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R10	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R11	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R12	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R13	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R14	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R15	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R16	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R17	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R18	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R19	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R20	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R21	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R22	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R23	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R24	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R25	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R26	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R27	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R28	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R29	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R30	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R31	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R32	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R33	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R34	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R35	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R36	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R37	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R38	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R39	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R40	ERJ2GEJ103X	Chip Resistor / 10K (1/16W)	
R41	ERJ2GEJ103X	Chip Resistor / 10K (1/16W)	
R42	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R43	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R44	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R45	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R46	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R47	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R48	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R49	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R50	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R51	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R52	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R53	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R54	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R55	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R56	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R57	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	

Ref. No.	Part No.	Part Name & Description	Remarks
R58	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R59	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R60	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R61	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R62	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R63	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R64	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R65	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R66	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R67	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R68	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R69	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R70	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R71	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R72	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R73	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R74	ERJ2GEJ103X	Chip Resistor / 10K (1/16W)	
R75	ERJ2GEJ103X	Chip Resistor / 10K (1/16W)	
R76	ERJ2GEJ103X	Chip Resistor / 10K (1/16W)	
R77	ERJ3EKF54R9V	Chip Resistor / 54.9 (1/16W)	KX-P7310 only
R78	ERJ3EKF54R9V	Chip Resistor / 54.9 (1/16W)	KX-P7310 only
R79	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	KX-P7310 only
R80	ERJ3EKF49R9V	Chip Resistor / 49.9 (1/16W)	KX-P7310 only
R81	ERJ3EKF49R9V	Chip Resistor / 49.9 (1/16W)	KX-P7310 only
R86	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R87	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R88	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R89	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R90	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R91	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R92	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R93	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R94	ERJ3GEYJ271	Chip Resistor / 270 (1/10W)	
R95	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R96	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R97	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R98	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R99	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R100	ERJ3GEYJ271	Chip Resistor / 270 (1/10W)	
R101	ERJ3GEYJ271	Chip Resistor / 270 (1/10W)	
R102	ERJ3GEYJ271	Chip Resistor / 270 (1/10W)	
R103	ERJ6GEYJ1R0V	Chip Resistor / 0 (1/8W)	
R106	ERJ2GEJ102X	Chip Resistor / 1K (1/16W)	
R107	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R108	ERJ2GEJ102X	Chip Resistor / 1K (1/16W)	
R109	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R110	ERJ2GEJ101X	Chip Resistor / 100 (1/16W)	
R111	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R112	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R113	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R114	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R115	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R116	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R117	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R118	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R120	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R121	ERJ2GEJ472X	Chip Resistor / 4.7K (1/16W)	
R122	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R123	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R124	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R125	ERJ2GEJ472X	Chip Resistor / 4.7K (1/16W)	
R126	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R127	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R129	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R130	ERJ2GEJ103X	Chip Resistor / 10K (1/16W)	
R131	ERJ2GEJ472X	Chip Resistor / 4.7K (1/16W)	
R132	ERJ2GEJ472X	Chip Resistor / 4.7K (1/16W)	
R133	ERJ2GEJ102X	Chip Resistor / 1K (1/16W)	
R134	ERJ2GEJ472X	Chip Resistor / 4.7K (1/16W)	
R135	ERJ2GEJ103X	Chip Resistor / 10K (1/16W)	
R136	ERJ3GEYJ473	Chip Resistor / 47 (1/10W)	
R137	ERJ2GEJ103X	Chip Resistor / 10K (1/16W)	
R151	ERJ2GE0R00X	Chip Resistor / 0 (1/16W)	
R152	ERJ2GEJ180X	Chip Resistor / 18 (1/16W)	

Ref. No.	Part No.	Part Name & Description	Remarks
R154	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R155	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R156	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R157	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R158	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R159	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R160	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R161	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R162	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R163	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R164	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R165	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R166	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R167	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R168	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R169	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R170	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R175	ERJ3GSYJ102V	Chip Resistor / 1K (1/10W)	
R176	ERJ2GEJ103X	Chip Resistor / 10K (1/16W)	
R177	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R178	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R179	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R180	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R181	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R182	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R183	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R184	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R185	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R186	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R187	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R188	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R189	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R190	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R191	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R192	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R193	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R194	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R195	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R196	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R197	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R198	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R199	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R200	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R201	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R202	ERJ2GEJ472X	Chip Resistor / 4.7K (1/16W)	
R203	ERJ2GEJ472X	Chip Resistor / 4.7K (1/16W)	
R204	ERJ2GEJ472X	Chip Resistor / 4.7K (1/16W)	
R205	ERJ2GEJ472X	Chip Resistor / 4.7K (1/16W)	
R206	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R207	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R208	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R209	ERJ2GEJ472X	Chip Resistor / 4.7K (1/16W)	
R210	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R211	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R212	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R213	ERJ2GEJ472X	Chip Resistor / 4.7K (1/16W)	
R214	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R215	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R216	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R217	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R218	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R219	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R220	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R221	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R222	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R228	ERJ3GEYJ682	Chip Resistor / 6.8 (1/10W)	
R229	ERJ3GSYJ105V	Chip Resistor / 1M (1/10W)	
R230	ERJ3GSYJ153V	Chip Resistor / 15K (1/10W)	
R231	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R232	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R233	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R234	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R236	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R239	ERJ2GEJ471X	Chip Resistor / 470 (1/16W)	KX-P7310 only

Ref. No.	Part No.	Part Name & Description	Remarks
R240	ERJ3EKF1002V	Chip Resistor / 10K (1/16W)	KX-P7310 only
R241	ERJ2GEJ103X	Chip Resistor / 10K (1/16W)	
R246	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R247	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R248	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R249	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R250	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R251	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R252	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R253	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R254	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R255	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R257	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R258	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R259	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R260	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R261	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R262	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R263	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R264	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R265	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R266	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R267	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R268	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R269	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R270	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R271	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R272	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R273	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R274	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R275	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R276	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R277	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R278	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R279	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R280	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R281	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R282	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R288	ERJ3GEYJ180	Chip Resistor / 18 (1/10W)	
R289	ERJ3GEYJ180	Chip Resistor / 18 (1/10W)	
R290	ERJ3GEYJ180	Chip Resistor / 18 (1/10W)	
R291	ERJ3GEYJ180	Chip Resistor / 18 (1/10W)	
R292	ERJ3GEYJ180	Chip Resistor / 18 (1/10W)	
R293	ERJ3GEYJ180	Chip Resistor / 18 (1/10W)	
R294	ERJ3GEYJ180	Chip Resistor / 18 (1/10W)	
R295	ERJ2GEJ180X	Chip Resistor / 18 (1/16W)	
R296	ERJ2GEJ180X	Chip Resistor / 18 (1/16W)	
R297	ERJ2GEJ180X	Chip Resistor / 18 (1/16W)	
R298	ERJ2GEJ180X	Chip Resistor / 18 (1/16W)	
R299	ERJ2GEJ180X	Chip Resistor / 18 (1/16W)	
R300	ERJ2GEJ180X	Chip Resistor / 18 (1/16W)	
R301	ERJ2GEJ180X	Chip Resistor / 18 (1/16W)	
R302	ERJ2GEJ180X	Chip Resistor / 18 (1/16W)	
R306	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	KX-P7310 only
R308	ERJ2GEJ102X	Chip Resistor / 1K (1/16W)	KX-P7310 only
R311	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R312	ERJ3GEYJ682	Chip Resistor / 6.8 (1/10W)	
R315	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R316	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R317	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R318	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R319	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R320	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1085	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R1086	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R1087	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R1088	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R1091	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R1092	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R1316	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R1336	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R1337	ERJ3GSYJ153V	Chip Resistor / 15K (1/10W)	
R1338	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1339	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	

Ref. No.	Part No.	Part Name & Description	Remarks
R1343	ERJ3EKF6201V	Chip Resistor / 6.2K (1/16W)	
R1362	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R1363	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R1367	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R1368	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R1369	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R1387	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R1388	ERJ2GEJ473X	Chip Resistor / 47K (1/16W)	
R1389	ERJ2GEJ473X	Chip Resistor / 47K (1/16W)	
R1390	ERJ2GEJ103X	Chip Resistor / 10K (1/16W)	
R1391	ERJ2GEJ100X	Chip Resistor / 10 (1/16W)	
R1392	ERJ2GE0R00X	Chip Resistor / 0 (1/16W)	
R1393	ERJ2GE0R00X	Chip Resistor / 0 (1/16W)	
R1394	ERJ2GE0R00X	Chip Resistor / 0 (1/16W)	
R1395	ERJ3GEYJ472	Chip Resistor / 4.7 (1/16W)	
R1396	ERJ3GSYJ101V	Chip Resistor / 100 (1/10W)	
R1402	ERJ3GEYJ100	Chip Resistor / 10 (1/10W)	
R1405	ERJ2GEJ330X	Chip Resistor / 33 (1/16W)	
R1406	ERJ2GEJ103X	Chip Resistor / 10K (1/16W)	
R1407	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1408	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R1409	ERJ3GSYJ101V	Chip Resistor / 100 (1/10W)	
R1410	ERJ3GSYJ101V	Chip Resistor / 100 (1/10W)	
R1411	ERJ3GSYJ101V	Chip Resistor / 100 (1/10W)	
R1412	ERJ3GSYJ101V	Chip Resistor / 100 (1/10W)	
R1413	ERJ3GSYJ101V	Chip Resistor / 100 (1/10W)	
R1414	ERJ3GSYJ101V	Chip Resistor / 100 (1/10W)	
R1415	ERJ3GSYJ101V	Chip Resistor / 100 (1/10W)	
R1416	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R1417	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1418	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1419	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1420	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1421	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1427	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1428	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1429	ERJ3GEYJ330	Chip Resistor / 33 (1/10W)	
R1430	ERJ3GSYJ103V	Chip Resistor / 10K (1/10W)	
R1431	ERJ3GSYJ101V	Chip Resistor / 100 (1/10W)	
R1432	ERJ3GSYJ101V	Chip Resistor / 100 (1/10W)	
R1433	ERJ3GSYJ101V	Chip Resistor / 100 (1/10W)	
R1434	ERJ2GEJ101X	Chip Resistor / 100 (1/16W)	
R1435	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1436	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1437	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1438	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R1439	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1440	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1441	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1442	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1443	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1444	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1445	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1446	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R1447	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1448	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1449	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1450	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1451	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1452	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1453	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R1454	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R1455	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1456	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R1457	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R1458	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1459	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1460	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1461	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1462	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1463	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1464	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	
R1465	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1466	ERJ3GEYJ181	Chip Resistor / 180 (1/10W)	

Ref. No.	Part No.	Part Name & Description	Remarks
R1467	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1468	ERJ2GEJ101X	Chip Resistor / 100 (1/16W)	
R1469	ERJ2GEJ101X	Chip Resistor / 100 (1/16W)	
R1470	ERJ2GEJ101X	Chip Resistor / 100 (1/16W)	
R1471	ERJ2GEJ101X	Chip Resistor / 100 (1/16W)	
R1472	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1473	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1474	ERJ2GEJ181X	Chip Resistor / 180 (1/16W)	
R1475	ERJ3GSYJ101V	Chip Resistor / 100 (1/10W)	KX-P7310 only
R1476	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1477	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1478	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1479	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1480	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1481	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1482	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	
R1483	ERJ3GSYJ0R0V	Chip Resistor / 0 (1/10W)	

Capacitor (All capacitor values are in microfarads unless otherwise noted.)

Ref. No.	Part No.	Part Name & Description	Remarks
C4	ECUX1H103KBV	Ceramic / 0.01p / 50V	
C5	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C6	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C7	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C9	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C10	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C11	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C12	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C13	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C14	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C15	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C16	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C17	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C18	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C19	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C20	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C21	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C22	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C23	ECEV1CA220WR	Electrolytic / 22 / 16V	
C24	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C25	ECEV0JA470S	Electrolytic / 47 / 6.3V	
C27	ECUX1H103KBV	Ceramic / 0.01p / 50V	KX-P7310 only
C28	ECJ0EF1H103Z	Ceramic / 0.01 / 50V	
C30	ECJ0EF1H103Z	Ceramic / 0.01 / 50V	KX-P7310 only
C31	ECJ0EF1H103Z	Ceramic / 0.01 / 50V	KX-P7310 only
C32	ECJ0EF1H103Z	Ceramic / 0.01 / 50V	KX-P7310 only
C33	ECJ0EF1H103Z	Ceramic / 0.01 / 50V	KX-P7310 only
C34	ECJ0EF1H103Z	Ceramic / 0.01 / 50V	
C35	ECJ0EF1H103Z	Ceramic / 0.01 / 50V	KX-P7310 only
C37	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C38	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C39	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C41	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	KX-P7310 only
C42	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	KX-P7310 only
C43	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	KX-P7310 only
C48	ECJ0EB1H101K	Ceramic / 100p / 50V	
C49	ECJ0EB1H101K	Ceramic / 100p / 50V	
C50	ECJ0EB1H101K	Ceramic / 100p / 50V	
C51	ECJ0EB1H101K	Ceramic / 100p / 50V	
C52	ECJ0EB1H101K	Ceramic / 100p / 50V	
C53	ECJ0EB1H101K	Ceramic / 100p / 50V	
C54	ECJ0EB1H101K	Ceramic / 100p / 50V	
C56	ECJ0EB1H101K	Ceramic / 100p / 50V	
C57	ECJ0EB1H101K	Ceramic / 100p / 50V	
C58	ECJ0EB1H101K	Ceramic / 100p / 50V	
C59	ECJ0EB1H101K	Ceramic / 100p / 50V	
C60	ECJ0EB1H101K	Ceramic / 100p / 50V	
C61	ECJ0EB1H101K	Ceramic / 100p / 50V	
C62	ECJ0EB1H101K	Ceramic / 100p / 50V	
C63	ECJ0EB1H101K	Ceramic / 100p / 50V	
C64	ECJ0EB1H101K	Ceramic / 100p / 50V	
C65	ECEV0GA101SP	Ceramic / 100p / 50V	
C69	ECEV1CA100SR	Electrolytic / 10 / 16V	
C72	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	

Ref. No.	Part No.	Part Name & Description	Remarks
C73	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C74	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C76	ECJ0EB1H101K	Ceramic / 100p / 50V	
C77	ECEV0GA101SP	Ceramic / 100p / 50V	
C78	ECEV0GA101SP	Ceramic / 100p / 50V	
C79	ECEV0GA101SP	Ceramic / 100p / 50V	
C80	ECEV0GA101SP	Ceramic / 100p / 50V	
C81	ECEV0GA101SP	Ceramic / 100p / 50V	
C82	ECUX1H102KBV	Ceramic / 1000p / 50V	
C85	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C86	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C87	ECEV1CA470S	Electrolytic / 47 / 16V	
C88	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C89	ECEV0JA470S	Electrolytic / 47 / 6.3V	
C90	ECEV0JA470S	Electrolytic / 47 / 6.3V	
C91	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C97	ECJ1VC1H030C	Ceramic / 3p / 50V	
C98	ECJ1VC1H070D	Ceramic / 7p / 50V	
C103	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C104	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C105	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C106	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C107	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C108	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C109	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C110	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C111	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C112	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C116	ECEV0GA101SP	Ceramic / 10p / 50V	
C117	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C118	ECEV1CA100SR	Electrolytic / 10 / 16V	
C119	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C120	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C121	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C122	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C124	ECUX1H103KBV	Ceramic / 0.01p / 50V	
C125	ECUX1H103KBV	Ceramic / 0.01p / 50V	
C126	ECUX1H103KBV	Ceramic / 0.01p / 50V	
C127	ECUX1H103KBV	Ceramic / 0.01p / 50V	
C128	ECUX1H103KBV	Ceramic / 0.01p / 50V	
C129	ECUX1H103KBV	Ceramic / 0.01p / 50V	
C130	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C131	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C132	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C133	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C134	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C200	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C204	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C213	ECEV1HA010	Electrolytic / 1 / 50V	KX-P7310 only
C214	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	KX-P7310 only
C215	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	KX-P7310 only
C218	ECUX1H102KBV	Ceramic / 1000p / 50V	
C219	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	KX-P7310 only
C220	ECUX1H103KBV	Ceramic / 0.01p / 50V	KX-P7310 only
C221	ECUX1H103KBV	Ceramic / 0.01p / 50V	KX-P7310 only
C222	ECJ0EF1H103Z	Ceramic / 0.01 / 50V	KX-P7310 only
C926	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C927	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C1132	ECEV0GA101SP	Ceramic / 100p / 50V	
C1133	ECEV1HA010	Electrolytic / 1 / 50V	
C1134	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C1135	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C1136	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C1137	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C1138	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C1142	ECEV1CA220WR	Electrolytic / 22 / 16V	
C1403	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C1404	ECEV1CA100SR	Electrolytic / 10 / 16V	
C1405	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C1406	ECEV1CA100SR	Electrolytic / 10 / 16V	
C1407	ECJ1VC1H200J	Ceramic / 20p / 50V	
C1408	ECJ1VC1H200J	Ceramic / 20p / 50V	
C1409	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C1410	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	

Ref. No.	Part No.	Part Name & Description	Remarks
C1411	ECEV1CA220SR	Electrolytic / 22 / 16V	
C1412	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C1414	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C1415	ECUX1H102KBV	Ceramic / 1000p / 50V	
C1416	ECJ1VC1H220J	Ceramic / 22p / 50V	
C1417	ECJ1VC1H220J	Ceramic / 22p / 50V	
C1421	ECEV1CA100SR	Electrolytic / 10 / 16V	KX-P7310 only
C1424	ECJ0EF1C104Z	Ceramic / 0.1 / 16V	
C1425	ECEV0GA101SP	Ceramic / 10p / 50V	
C1426	ECUX1H100DCV	Ceramic / 10p / 50V	
C1427	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	
C1428	ECJ1VF1H104Z	Ceramic / 0.1 / 50V	

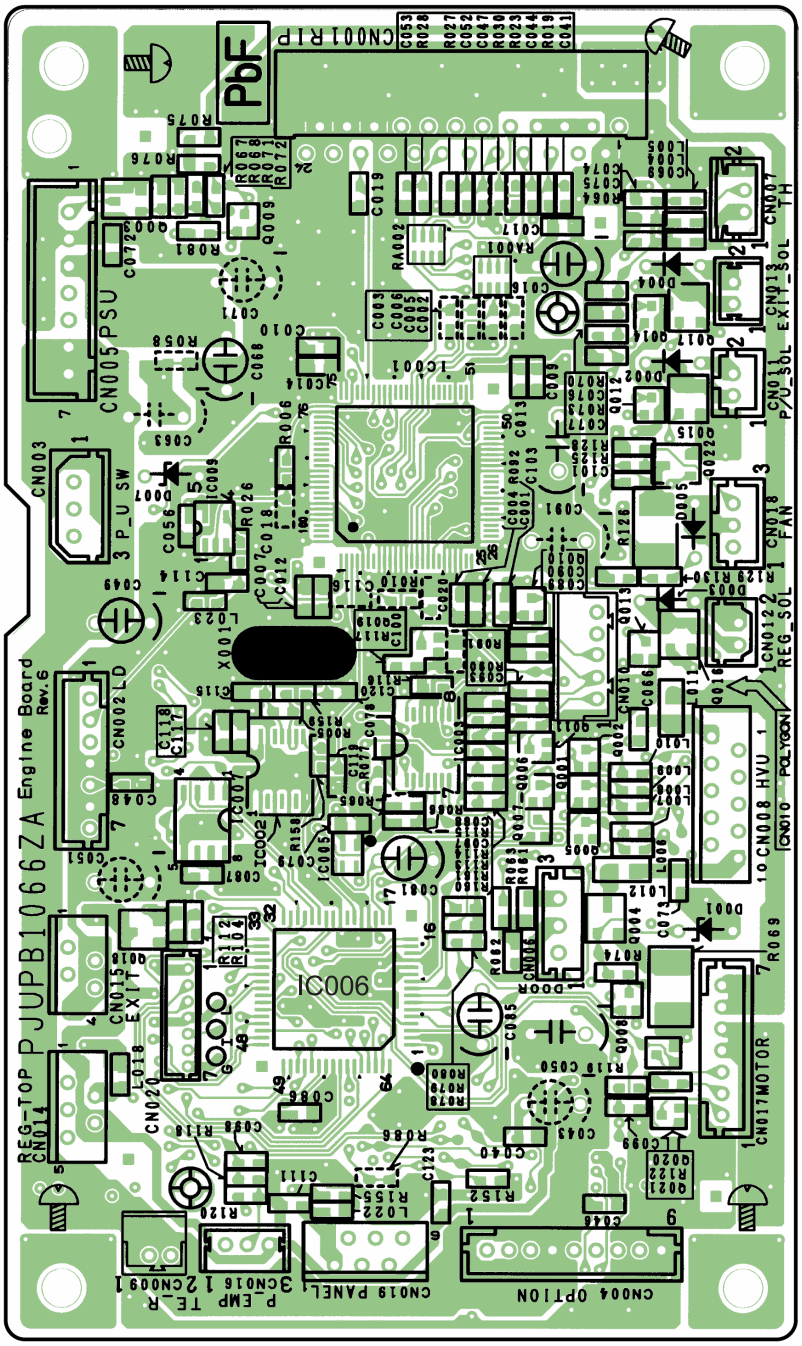
Connectors, Transistors and Oscillators

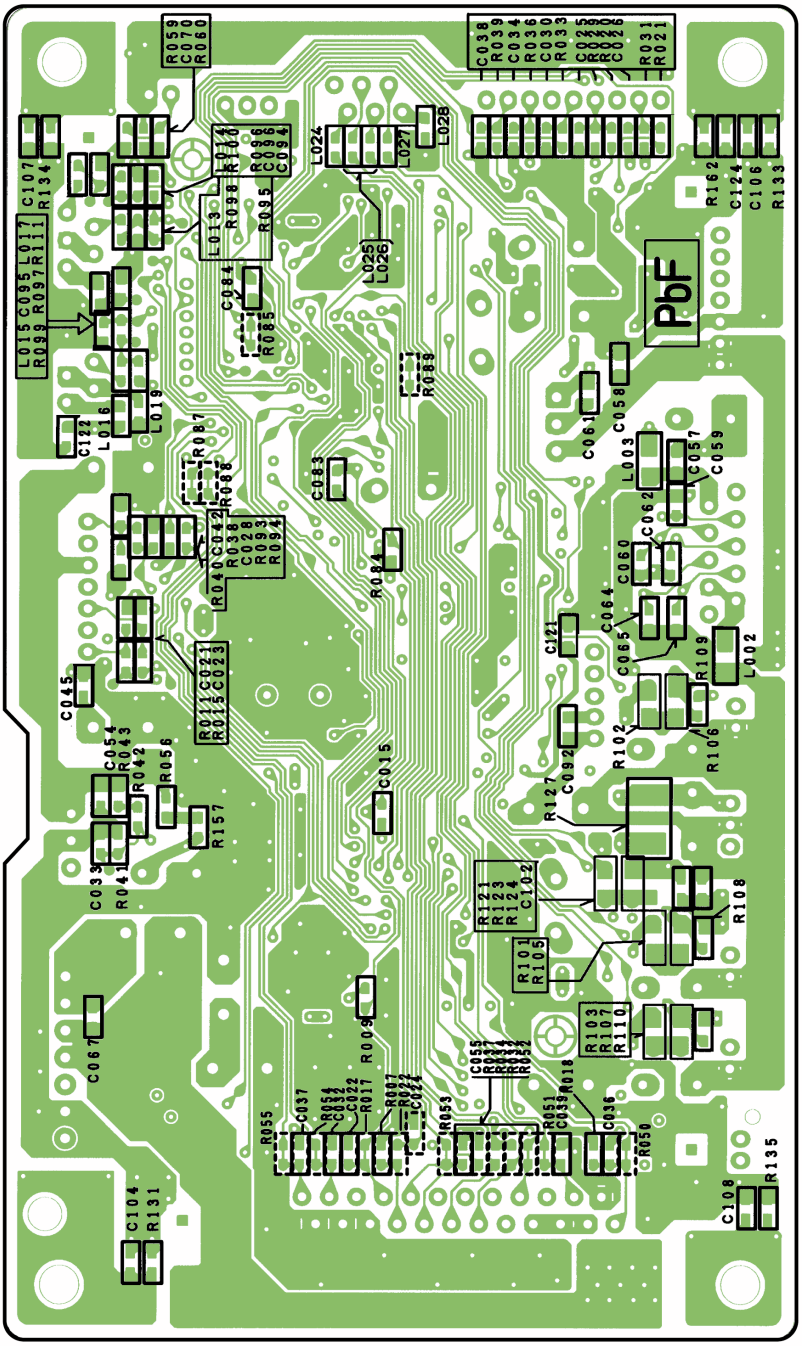
Ref. No.	Part No.	Part Name & Description	Remarks
CN2	K1KB68A00020	Connector (for Option RAM Board)	
CN3	N5HBZ0000002	LAN Connector	KX-P7310 only
CN4	PJJS714Z	Connector (for Centronics Interface)	
CN5	K1MN24B00014	Connector	
CN9	K1FA104B0028	USB Connector	
Q3	B1GBCFJJ0031	Transistor	
Q4	B1GBCFJJ0031	Transistor	
Q5	B1GBCFJJ0031	Transistor	
X1	H0D500500002	Crystal Unit 50MHz	
X10	H0D330500001	Crystal Unit 33MHz	
X1101	HC49U12.0MHZ	Crystal Unit 12MHz	
X3	H0D693500001	Crystal Unit 69.3655MHz	

Diodes and Coils

Ref. No.	Part No.	Part Name & Description	Remarks
D12	LNJ808R8ERA	Orange LED	KX-P7310 only
DA1	PJVDMA152WA	Diode	
DA2	PJVDMA152WA	Diode	
DA3	PJVDMA152WA	Diode	
DA4	PJVDMA152WA	Diode	
DA5	PJVDMA152WA	Diode	
DA6	PJVDMA152WA	Diode	
DA7	PJVDMA152WA	Diode	
DA8	PJVDMA152WA	Diode	
DA9	PJVDMA152WA	Diode	
DA13	PJVDMA152WA	Diode	
L1	PJLQ471H19B	Coil	
L2	PJLQ471H19B	Coil	
L3	PJLQ471H19B	Coil	
L4	PJLQ471H19B	Coil	
L10	G1CR56JA0036	Coil	
L11	J0JCC0000144	Chip EMIFIL	KX-P7310 only
L12	J0JCC0000144	Chip EMIFIL	KX-P7310 only
L13	J0JCC0000144	Chip EMIFIL	KX-P7310 only
L14	J0JCC0000144	Chip EMIFIL	KX-P7310 only
L15	J0JCC0000144	Chip EMIFIL	KX-P7310 only
L16	J0JCC0000144	Chip EMIFIL	KX-P7310 only
L17	PJLQ471H19B	Coil	
L18	G1BYYYG00009	Coil	
L19	PJLQ471H19B	Coil	
L20	PJLQ471H19B	Coil	
L21	PJLQ471H19B	Coil	
L22	PJLQ471H19B	Coil	
L23	PJLQ471H19B	Coil	
L24	J0HABK000002	EMIFIL	
L33	J0JEC0000005	Chip EMIFIL	

11.10. Engine Control Board





Integrated Circuit, Transistors and Crystal Resonator

Ref. No.	Part No.	Part Name & Description
IC001	PJVANG0022Z	IC (ASIC)
IC002	C0JBAB000521	IC (Logic)
IC003	NJM2901V	IC
IC005	PST3642UR	IC (Reset IC)
IC006	PJWI1P7305M	IC
IC007	C3EBDG000024	IC (EEPROM)
IC009	PJVITC7SH08F	IC
Q001	PJVTIRANBAD3	Transistor
Q002	PJVTIRANBAD3	Transistor
Q003	B1ABCF000011	Transistor
Q004	2SC2411KR	Transistor
Q005	PJVTIRANBAD3	Transistor
Q006	PJVTIRANBAD3	Transistor
Q007	PJVTIRANBAD3	Transistor
Q008	PJVIDTA114EU	Transistor
Q009	PJVTIRANBAD3	Transistor
Q010	PJVTIRANBAD3	Transistor
Q011	PJVTIRANBAD3	Transistor
Q012	PJVTIRANBAD3	Transistor
Q013	PJVTIRANBAD3	Transistor

Ref. No.	Part No.	Part Name & Description
Q014	PJVTIRANBAD3	Transistor
Q015	2SA1036KR	Transistor
Q016	2SA1036KR	Transistor
Q017	2SA1036KR	Transistor
Q018	2SA1036KR	Transistor
Q019	PJVTIRANBAD3	Transistor
Q020	PJVTIRANBAD3	Transistor
Q021	PJVTIRANBAD3	Transistor
Q022	2SA1036KR	Transistor
X001	HC49U12.0MHZ	X´tal (Crystal Resonator)

Resistors

Ref. No.	Part No.	Part Name & Description
R005	ERJ3GSYJ105V	1M (1/16W) / Chip
R006	ERJ3GSYJ221V	220 (1/16W) / Chip
R007	ERJ3GSYJ0R0V	Dummy
R009	ERJ3GEYJ330	33 (1/16W) / Chip
R011	ERJ3GSYJ101V	100 (1/16W) / Chip
R015	ERJ3GSYJ101V	100 (1/16W) / Chip
R018	ERJ3GSYJ103V	10k (1/16W) / Chip
R019	ERJ3GSYJ103V	10k (1/16W) / Chip
R020	ERJ3GEYJ511V	510 (1/16W) / Chip
R021	ERJ3GEYJ511V	510 (1/16W) / Chip
R023	ERJ3GSYJ103V	10k (1/16W) / Chip
R026	ERJ3GSYJ101V	100 (1/16W) / Chip
R027	ERJ3GSYJ103V	10k (1/16W) / Chip
R028	ERJ3GSYJ103V	10k (1/16W) / Chip
R029	ERJ3GSYJ103V	10k (1/16W) / Chip
R031	ERJ3GEYJ472	4.7k (1/16W) / Chip
R033	ERJ3GEYJ511V	510 (1/16W) / Chip
R036	ERJ3GEYJ511V	510 (1/16W) / Chip
R038	ERJ3GSYJ101V	100 (1/16W) / Chip
R039	ERJ3GEYJ511V	510 (1/16W) / Chip
R040	ERJ3GSYJ103V	10k (1/16W) / Chip
R041	ERJ3GEYJ513V	51k (1/16W) / Chip
R042	ERJ3GEYJ511V	510 (1/16W) / Chip
R043	ERJ3GEYJ511V	510 (1/16W) / Chip
R056	ERJ3GSYJ101V	100 (1/16W) / Chip
R059	ERJ3GEYJ474	470k (1/16W) / Chip
R060	ERJ3GEYJ511V	510 (1/16W) / Chip
R061	ERJ3GEYJ513V	51k (1/16W) / Chip
R062	ERJ3GSYJ103V	10k (1/16W) / Chip
R063	ERJ3GSYJ102V	1k (1/16W) / Chip
R064	ERJ3EKF3903V	390k (1/16W) / Chip
R065	ERJ3GSYJ222V	2.2k (1/16W) / Chip
R066	ERJ3GSYJ222V	2.2k (1/16W) / Chip
R067	ERJ3GSYJ222V	2.2k (1/16W) / Chip
R068	ERJ3GSYJ222V	2.2k (1/16W) / Chip
R069	ERJ12YJ180U	18 (1/2W) / Chip
R070	ERJ3EKF1802V	18k (1/16W) / Chip
R071	ERJ3GSYJ102V	1k (1/16W) / Chip
R072	ERJ3GSYJ102V	1k (1/16W) / Chip
R073	ERJ3GSYJ102V	1k (1/16W) / Chip
R074	ERJ3GSYJ221V	220 (1/16W) / Chip
R075	ERJ3GSYJ103V	10k (1/16W) / Chip
R076	ERJ3GSYJ103V	10k (1/16W) / Chip
R077	ERJ3GSYJ103V	10k (1/16W) / Chip
R078	ERJ3GEYJ472	4.7k (1/16W) / Chip
R079	ERJ3GEYJ472	4.7k (1/16W) / Chip
R080	ERJ3GEYJ472	4.7k (1/16W) / Chip
R081	ERJ3GSYJ103V	10k (1/16W) / Chip
R084	ERJ3GEYJ472	4.7k (1/16W) / Chip
R090	ERJ3GEYJ511V	510 (1/16W) / Chip
R091	ERJ3GSYJ103V	10k (1/16W) / Chip
R092	ERJ3GEYJ472	4.7k (1/16W) / Chip
R093	ERJ3GEYJ513V	51k (1/16W) / Chip
R094	ERJ3GSYJ103V	10k (1/16W) / Chip
R095	ERJ3GEYJ511V	510 (1/16W) / Chip
R096	ERJ3GEYJ511V	510 (1/16W) / Chip
R097	ERJ3GEYJ511V	510 (1/16W) / Chip
R098	ERJ3GSYJ103V	10k (1/16W) / Chip
R099	ERJ3GSYJ103V	10k (1/16W) / Chip
R100	ERJ3GSYJ103V	10k (1/16W) / Chip
R101	ERJ6GEYJ222	2.2k (1/10W) / Chip

Ref. No.	Part No.	Part Name & Description
R102	ERJ6GEYJ222	2.2k (1/10W) / Chip
R103	ERJ6GEYJ222	2.2k (1/10W) / Chip
R104	ERJ3GSYJ222V	2.2k (1/16W) / Chip
R105	ERJ6GEYJ222	2.2k (1/10W) / Chip
R106	ERJ6GEYJ222	2.2k (1/10W) / Chip
R107	ERJ6GEYJ222	2.2k (1/10W) / Chip
R108	ERJ3GSYJ103V	10k (1/16W) / Chip
R109	ERJ3GSYJ103V	10k (1/16W) / Chip
R110	ERJ3GSYJ103V	10k (1/16W) / Chip
R111	ERJ3GEYJ1R0V	1 (1/10W) / Chip
R112	ERJ3GEYJ472	4.7k (1/16W) / Chip
R113	ERJ3GSYJ103V	10k (1/16W) / Chip
R114	ERJ3GSYJ224V	220k (1/16W) / Chip
R115	ERJ3GSYJ183V	18k (1/16W) / Chip
R116	ERJ3GSYJ105V	1M (1/16W) / Chip
R117	ERJ3GSYJ222V	2.2k (1/16W) / Chip
R118	ERJ3GEYJ511V	510 (1/16W) / Chip
R119	ERJ3GEYJ511V	510 (1/16W) / Chip
R120	ERJ3GSYJ103V	10k (1/16W) / Chip
R121	ERJ6GEYJ222	2.2k (1/10W) / Chip
R122	ERJ3GSYJ103V	10k (1/16W) / Chip
R123	ERJ6GEYJ222	2.2k (1/10W) / Chip
R124	ERJ3GSYJ103V	10k (1/16W) / Chip
R125	ERJ3GEYJ511V	510 (1/16W) / Chip
R126	ERJ12YJ120H	12 (1/2W) / Chip
R127	ERJ12YJ120H	12 (1/2W) / Chip
R128	ERJ3GSYJ103V	10k (1/16W) / Chip
R129	ERJ3EKF2403V	240 (1/16W) / Chip
R130	ERJ3GEYJ393	39k (1/16W) / Chip
R131	ERJ3GEYJ100	10 (1/16W) / Chip
R133	ERJ3GEYJ100	10 (1/16W) / Chip
R134	ERJ3GEYJ100	10 (1/16W) / Chip
R135	ERJ3GEYJ100	10 (1/16W) / Chip
R152	ERJ3GSYJ0R0V	Dummy
R155	ERJ3GEYJ1R0V	1 (1/10W) / Chip
R157	ERJ3GSYJ101V	100 (1/16W) / Chip
R158	ERJ3GEYJ100	10 (1/16W) / Chip
R159	ERJ3GSYJ222V	2.2k (1/16W) / Chip
R160	ERJ3EKF2202V	22k (1/16W) / Chip
R161	ERJ3EKF3301V	3.3k (1/16W) / Chip
R162	ERJ3GEYJ100	10 (1/16W) / Chip
RA001	EXBV8V222JV	Chip Resister Array
RA002	EXBV8V330JV	Chip Resister Array

Capacitors

Ref. No.	Part No.	Part Name & Description
C001	ECEV0GA101SP	Ceramic / 100p / 50V
C004	ECUV1C104KBV	Ceramic / 0.1 / 16V
C007	ECEV0GA101SP	Ceramic / 100p / 50V
C009	ECEV0GA101SP	Ceramic / 100p / 50V
C010	ECEV0GA101SP	Ceramic / 100p / 50V
C012	ECUV1C104KBV	Ceramic / 0.1 / 16V
C013	ECUV1C104KBV	Ceramic / 0.1 / 16V
C014	ECUV1C104KBV	Ceramic / 0.1 / 16V
C015	ECEV0GA101SP	Ceramic / 100p / 50V
C016	ECEA0JKA470B	Electrolytic / 4.7 / 6.3V
C017	ECUV1C104KBV	Ceramic / 0.1 / 16V
C019	ECEV0GA101SP	Ceramic / 100p / 50V
C021	ECUV1H271JCV	Ceramic / 270p / 50V
C022	ECEV0GA101SP	Ceramic / 100p / 50V
C023	ECUV1H271JCV	Ceramic / 270p / 50V
C025	ECEV0GA101SP	Ceramic / 100p / 50V
C026	ECEV0GA101SP	Ceramic / 100p / 50V
C028	ECEV0GA101SP	Ceramic / 100p / 50V
C030	ECEV0GA101SP	Ceramic / 100p / 50V
C032	ECEV0GA101SP	Ceramic / 100p / 50V
C033	ECUX1H102KBV	Ceramic / 1000p / 50V
C034	ECEV0GA101SP	Ceramic / 100p / 50V
C036	ECEV0GA101SP	Ceramic / 100p / 50V
C037	ECEV0GA101SP	Ceramic / 100p / 50V
C038	ECEV0GA101SP	Ceramic / 100p / 50V
C039	ECEV0GA101SP	Ceramic / 100p / 50V
C040	ECUV1C104KBV	Ceramic / 0.1 / 16V
C041	ECEV0GA101SP	Ceramic / 100p / 50V

Ref. No.	Part No.	Part Name & Description
C042	ECEV0GA101SP	Ceramic / 100p / 50V
C044	ECEV0GA101SP	Ceramic / 100p / 50V
C045	ECUX1H103KBV	Ceramic / 0.01 / 50V
C046	ECJ1VF1H104Z	Ceramic / 0.1 / 50V
C047	ECEV0GA101SP	Ceramic / 100p / 50V
C048	ECUV1C104KBV	Ceramic / 0.1 / 16V
C049	ECEA0JKA470B	Electrolytic / 4.7 / 6.3V
C050	ECEA1HGE470	Electrolytic / 47 / 35V
C052	ECEV0GA101SP	Ceramic / 100p / 50V
C053	ECEV0GA101SP	Ceramic / 100p / 50V
C054	ECUX1H103KBV	Ceramic / 0.01 / 50V
C055	ECEV0GA101SP	Ceramic / 100p / 50V
C056	ECUV1C104KBV	Ceramic / 0.1 / 16V
C057	ECEV0GA101SP	Ceramic / 100p / 50V
C058	ECUX1H103KBV	Ceramic / 0.01 / 50V
C059	ECEV0GA101SP	Ceramic / 100p / 50V
C060	ECEV0GA101SP	Ceramic / 100p / 50V
C061	ECUX1H103KBV	Ceramic / 0.01 / 50V
C062	ECEV0GA101SP	Ceramic / 100p / 50V
C064	ECEV0GA101SP	Ceramic / 100p / 50V
C065	ECEV0GA101SP	Ceramic / 100p / 50V
C066	ECEV0GA101SP	Ceramic / 100p / 50V
C067	ECJ1VF1H104Z	Ceramic / 0.1 / 50V
C068	ECEA0JKA470B	Electrolytic / 4.7 / 6.3V
C069	ECUV1C104KBV	Ceramic / 0.1 / 16V
C070	ECUX1H102KBV	Ceramic / 1000p / 50V
C072	ECUV1C104KBV	Ceramic / 0.1 / 16V
C073	ECEV0GA101SP	Ceramic / 100p / 50V
C074	ECEV0GA101SP	Ceramic / 100p / 50V
C075	ECEV0GA101SP	Ceramic / 100p / 50V
C076	ECUX1H102KBV	Ceramic / 1000p / 50V
C077	ECUX1H102KBV	Ceramic / 1000p / 50V
C078	ECJ1VF1H104Z	Ceramic / 0.1 / 50V
C079	ECUV1C104KBV	Ceramic / 0.1 / 16V
C081	ECEA1HKR47	Electrolytic / 47 / 50V
C083	ECUV1C104KBV	Ceramic / 0.1 / 16V
C084	ECUV1C104KBV	Ceramic / 0.1 / 16V
C085	ECEA0JKA470B	Electrolytic / 4.7 / 6.3V
C086	ECUV1C104KBV	Ceramic / 0.1 / 16V
C087	ECUV1C104KBV	Ceramic / 0.1 / 16V
C088	ECUX1H102KBV	Ceramic / 1000p / 50V
C089	ECEV0GA101SP	Ceramic / 100p / 50V
C090	ECEV0GA101SP	Ceramic / 100p / 50V
C092	ECJ1VF1H104Z	Ceramic / 0.1 / 50V
C093	ECEV0GA101SP	Ceramic / 100p / 50V
C094	ECUX1H102KBV	Ceramic / 1000p / 50V
C095	ECUX1H102KBV	Ceramic / 1000p / 50V
C096	ECUX1H102KBV	Ceramic / 1000p / 50V
C097	F1H0J1050012	Ceramic / 1 / 6.3V
C098	ECUX1H102KBV	Ceramic / 1000p / 50V
C099	ECUX1H102KBV	Ceramic / 1000p / 50V
C101	ECUX1H102KBV	Ceramic / 1000p / 50V
C102	ECJ1VF1H104Z	Ceramic / 0.1 / 50V
C103	ECEA1HGE470	Electrolytic / 47 / 35V
C104	ECUX1H102KBV	Ceramic / 1000p / 50V
C106	ECUX1H102KBV	Ceramic / 1000p / 50V
C107	ECUX1H102KBV	Ceramic / 1000p / 50V
C108	ECUX1H102KBV	Ceramic / 1000p / 50V
C111	ECUV1C104KBV	Ceramic / 0.1 / 16V
C114	ECUX1H100DCV	Ceramic / 10p / 50V
C115	ECUV1H270JCV	Ceramic / 27p / 50V
C117	ECUV1C104KBV	Ceramic / 0.1 / 16V
C118	ECEV0GA101SP	Ceramic / 100p / 50V
C119	ECEV0GA101SP	Ceramic / 100p / 50V
C120	ECUV1H270JCV	Ceramic / 27p / 50V
C121	ECUX1H103KBV	Ceramic / 0.01 / 50V
C122	ECUX1H103KBV	Ceramic / 0.01 / 50V
C123	ECUX1H103KBV	Ceramic / 0.01 / 50V
C124	ECUX1H102KBV	Ceramic / 1000p / 50V

Connectors

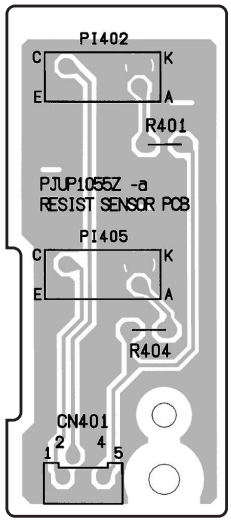
Ref. No.	Part No.	Part Name & Description
CN001	K1MN24B00014	Connector
CN002	K1KA07A00058	Connector

Ref. No.	Part No.	Part Name & Description
CN003	PJJP03AK01Z	Connector
CN004	B9B-PH-K-S	Connector
CN005	B7B-XH-A	Connector
CN006	K1KA03A00082	Connector
CN007	PJJP475Z	Connector
CN008	10FE-BT-VK-N	Connector
CN009	PJJP362Z	Connector
CN010	175487-5	Connector
CN011	PBB2B-PH	Connector
CN012	53014-0210	Connector
CN013	PJJP469Z	Connector
CN014	05FE-BT-VK-N	Connector
CN015	04FE-BT-VK-N	Connector
CN016	53253-0310	Connector
CN017	K1KA07A00058	Connector
CN018	K1KA03A00086	Connector
CN019	06FE-BT-VK-N	Connector
CN020	K1KA07A00129	Connector

Diodes and Coils

Ref. No.	Part No.	Part Name & Description
D001	PJVDHZS2C2TD	Diode
D002	PJVD1SS119TD	Diode
D003	PJVD1SS119TD	Diode
D004	PJVD1SS119TD	Diode
D005	PJVD1SS119TD	Diode
D007	PJVDHZS2C2TD	Diode
L002	PJLQ108Z	Bead Inductor
L003	PJLQ108Z	Bead Inductor
L004	J0JBC0000007	Beads Inductor (SMD)
L005	J0JBC0000007	Beads Inductor (SMD)
L006	J0JBC0000007	Beads Inductor (SMD)
L007	J0JBC0000007	Beads Inductor (SMD)
L008	J0JBC0000007	Beads Inductor (SMD)
L009	J0JBC0000007	Beads Inductor (SMD)
L010	J0JBC0000007	Beads Inductor (SMD)
L011	PJLQ108Z	Bead Inductor
L012	PJLQ108Z	Bead Inductor
L013	J0JBC0000007	Beads Inductor (SMD)
L014	J0JBC0000007	Beads Inductor (SMD)
L015	J0JBC0000007	Beads Inductor (SMD)
L016	J0JBC0000007	Beads Inductor (SMD)
L017	J0JBC0000007	Beads Inductor (SMD)
L018	J0JBC0000007	Beads Inductor (SMD)
L019	J0JBC0000007	Beads Inductor (SMD)
L022	J0JBC0000007	Beads Inductor (SMD)
L023	PJLQ471H19B	Coil
L024	J0JBC0000007	Beads Inductor (SMD)
L025	J0JBC0000007	Beads Inductor (SMD)
L026	J0JBC0000007	Beads Inductor (SMD)
L027	J0JBC0000007	Beads Inductor (SMD)
L028	J0JBC0000007	Beads Inductor (SMD)

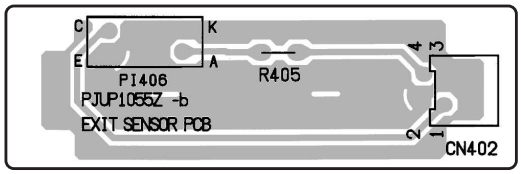
11.11. Registration & Paper Top Detection Sensor Board



All resistor values are in OHMs.

Ref. No.	Part No.	Part Name & Description
R401/R404	ERDS2TJ181T	Resistor / 180 (1/4W)
PI402/PI405	LTH301-07P5M	Photo-interrupter
CN401	05FE-ST-VK-N	Connector
1	PJUP1055Z-A	Bare PCB

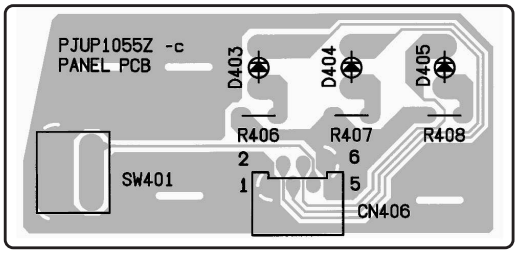
11.12. Paper Exit / ADU Paper Jam Sensor Board



Resistor values is in OHMs.

Ref. No.	Part No.	Part Name & Description
R405	ERDS2TJ181T	Resistor / 180 (1/4W)
PI406	LTH301-07P5M	Photo-interrupter
CN402	04FE-ST-VK-N	Connector
1	PJUP1055Z-B	Bare PCB

11.13. Indicator Board

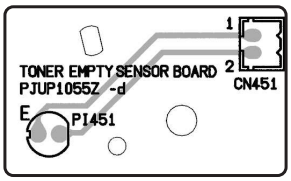


All resistor values are in OHMs.

Ref. No.	Part No.	Part Name & Description
R406-R408	ERDS2TJ181T	Resistor / 180 (1/4W)
D403	LTL4251N-081	LED (Yellow)
D404	LTL4221N-081	LED (Red)
D405	LTL4231N-081	LED (Green)
SW401	SPN-02-5.0	Switch
CN406	06FE-ST-VK-N	Connector

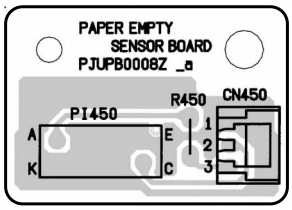
Ref. No.	Part No.	Part Name & Description
1	PJUP1055Z-C	Bare PCB

11.14. Toner Empty Sensor Board



Ref. No.	Part No.	Part Name & Description
PI451	B3HA00000029	Photo Transistor
CN451	PJJP362Z	Connector
1	PJUP1055Z-D	Bare PCB

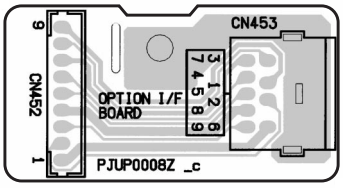
11.15. Paper Empty Sensor Board



Resistor value is in OHMs.

Ref. No.	Part No.	Part Name & Description
R450	ERDS2TJ181T	Resistor / 180 (1/4W)
PI450	LTH301-07P5M	Photo-interrupter
CN450	53254-0310	Connector
1	PJUPB0008Z-A	Bare PCB (7UP)

11.16. 2nd Feeder I/F Board



Ref. No.	Part No.	Part Name & Description
CN452	B9B-PH-K-S	Connector
CN453	MDS9S3SS1001	MINI-DIN Connector
1	PJUPB0008Z-C	Bare PCB (7UP)

11.17. PbF Solder Service Part Number

The service part number for the recommended PbF solder is RMA02M705-08.

When the recommended PbF solder is not available at Senju Metal Industry Co., Ltd., use this PbF solder part number.